Prevalence and characterization of non-odontogenic orofacial pain in a tertiary health-care center at Puducherry - A cross-sectional study

V. L. Lakshman¹, Vishwanath Rangdhol², S. Vandana³, G. Sitra ², Swetha Paulose², E. B. Kayalvizhi²

¹Department of Oral Medicine and Radiology, Ragas Dental College, Uthandi, Tamil Nadu, India, ²Department of Oral Medicine and Radiology, Indira Gandhi Institute of Dental Sciences, Villupuram, Tamil Nadu, India

Keywords
Headache, neuralgic pain conditions, orofacial pain, sinusitis, temporomandibular joint/ musculoskeletal disorders

Abstract
Background: Pain is a significant discomfort faced by the majority of people with orofacial disorders. This study was aimed at assessing nature of pain using different pain skills among population suffering from non-odontogenic orofacial pain.

Objective: To estimate the prevalence of non-odontogenic pain and characterize the nature of non-odontogenic pain at the outpatient department of Mahatma Gandhi Medical Hospital and Indira Gandhi Institute of Dental Sciences.

Method: Patients were selected by randomized sampling method for a period of 1 year. Patients diagnosed with non-odontogenic orofacial pain were asked to fill pain questionnaires to analyze the intensity and quality of the pain. The obtained results were subjected to percentage analysis.

Results: A total of 1515 patients reported with non-odontogenic orofacial pain, with male to female ratio of 2.08:1.03. The majority of patients reported pain due to temporomandibular joint/musculoskeletal disorders, followed by non-odontogenic oral pain conditions such as headache and neuralgic pain conditions, sinusitis, ear-related disorders, throat- and neck-related disorders, and psychogenic pain conditions. The intensity and quality of pain differed from each condition.

Conclusion: Multiple scales to measure the intensity of pain, and McGill pain questionnaire to analyze the quality and character of pain gives a fair idea about the patient’s quality of life, providing baseline information about non-odontogenic orofacial pain.

Introduction

Pain is a subjective and complex phenomenon with significant discomfort and suffering and is the most common symptom of dental and oral diseases. The term “pain” is currently defined as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage” by the International Association for the Study of Pain.¹

Very few studies have been done stating the prevalence of non-odontogenic orofacial pain as a whole. The present study was designed to estimate the prevalence of various non-odontogenic orofacial pain reported at the outpatient department of Mahatma Gandhi Medical Hospital and Indira Gandhi Institute of Dental Sciences and to characterize the various non-odontogenic orofacial pain conditions with the help of pain questionnaires.

Patients and Methodology

This was a yearlong cross-sectional study conducted in Mahatma Gandhi Medical Hospital and Indira Gandhi Institute of Dental Sciences at Puducherry, after approval from Institutional Review Board and Ethical committee.

Patients sample

The patients were selected by randomized sampling method for a time period of 1 year. Patients who reported with orofacial pain in the outpatient department of Indira Gandhi Institute of Dental Sciences and Mahatma Gandhi Medical Hospital were enrolled in the study and were explained about the study, the pain questionnaire, and the pain scales. Patient’s consent was obtained in English/Vernacular language. Further, the participants were sent for preliminary examination by an experienced oral medicine
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This is a descriptive study; the data obtained was recorded in a standardized pro forma. The prevalence of the non-odontogenic pain according to categories was tabulated and analyzed. The results were tabulated in percentage and ratio format.

Results and Observations

Among the 1515 patients with non-odontogenic pain in orofacial region screened, the age range was between 10 and 80 years with mean age of 46.85 years. The mean age group among males was 38 years old and females was 50 years old [Graph 1], among 1515 patients 986 (65.08%) were male patients and 529 (34.91%) were female patients [Graph 2]. The prevalence of various pain conditions and maximum number of pain characters reported by the patients are described in Tables 1 and 2, Graph 3.

Discussion

Pain is a significant discomfort faced by majority of people with orofacial disorders. This study was aimed at assessing nature of pain using different pain skills among population suffering from non-odontogenic orofacial pain.

Population observed with non-odontogenic orofacial pain ranged between 10 and 80 years with a higher male predilection (65%) and an younger mean age of 38.17 years in males compared to a mean age of 50 years in females similar to the study carried out by Rajić et al. Orofacial pain was more prevalent in patients belonging to the age group 16-80 with a mean age group of 52.4 years.

<table>
<thead>
<tr>
<th>Pain conditions</th>
<th>Numeric rating scale</th>
<th>Behavior rating scale</th>
<th>Descriptive rating scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temporomandibular/joint/musculoskeletal</td>
<td>9, 8, 6, 7</td>
<td>Severe</td>
<td>Pain present, cannot be ignored, and interferes with basic needs</td>
</tr>
<tr>
<td>Non-odontogenic oral pain conditions</td>
<td>2, 3, 4</td>
<td>Mild</td>
<td>Pain present, which can be easily ignored</td>
</tr>
<tr>
<td>Headache/migraine</td>
<td>9</td>
<td>Severe</td>
<td>Pain present, cannot be ignored, and interferes with concentration</td>
</tr>
<tr>
<td>Neuralgia/neuropathic pain conditions</td>
<td>9, 8</td>
<td>Severe</td>
<td>Pain present, cannot be ignored, interferes with concentration and pain present, cannot be ignored, but does not interfere with everyday activities</td>
</tr>
<tr>
<td>Sinusitis</td>
<td>3</td>
<td>Severe</td>
<td>Pain present but can easily be ignored</td>
</tr>
<tr>
<td>Ear-related pain conditions</td>
<td>5</td>
<td>Moderate</td>
<td>Pain present but can easily be ignored</td>
</tr>
<tr>
<td>Throat- and neck-related pain conditions</td>
<td>9</td>
<td>Severe</td>
<td>Pain present, cannot be ignored, and interferes with concentration</td>
</tr>
<tr>
<td>Psychogenic pain conditions</td>
<td>5</td>
<td>Moderate</td>
<td>Pain present, cannot be ignored, and interferes with concentration</td>
</tr>
</tbody>
</table>

Graph 1: Age distribution

Graph 2: Gender distribution

Graph 3: Prevalence of pain condition
Temporomandibular joint (TMJ)/musculoskeletal disorders showed the highest prevalence (28.38%) with a male predilection and at significantly lower mean age (29.85 years males, 26.71 years females) compared to the average mean age of the study population (38.17 years males and 50 years females). Maximum number of patients reported with severe intensity of pain using descriptive rating scale and aching type of pain using McGill pain questionnaire. Similar study was reported by Ryalat et al. and Tomoyasu et al. with a prevalence rate of 35.4% and 23%, respectively.[5,6] Fotedar et al. reported similar results with male predominance.[5] International Association for study of pain (2009) and Syed et al. reported similar results with the peak age of occurrence between 20-40 and 18-25 years of age.[6,7] Vickers et al. reported similar results with severe intensity and aching type of pain using visual analog scale and McGill pain questionnaire, respectively.[8]

Non-odontogenic oral pain conditions showed a prevalence of 20.92%, with male predilection at the lower mean age of 26.57 years males and 18.57 years females compared to total mean age of the study population (38.17 years for males and 50 years for females). Maximum number of patients reported with mild intensity of pain using descriptive rating scale. Similar results were reported by Oberoi et al. with male predilection and Vickers et al. and Oberoi et al. with mild intensity of non-odontogenic oral pain.[8,9]

Headache/migraine pain conditions showed a prevalence of 13.59% with male predominance at mean age of 39 years for males and a significant lower mean age of 27.91% for females compared to total mean age of the study population (38.17 years for males and 50 years for females). Maximum number of patients reported with severe intensity of pain using descriptive rating scale. Smitherman et al. reported with a rise in prevalence rate (16.66%) compared to our study. Similar results were obtained from Ghorbani et al. with male predominance, Bruns and Disorbio with severe intensity of pain.[10-12]

Neuralgic and neuropathic pain conditions showed a prevalence rate of 8.44%, with a male predominance at a mean age group of 33.28% for males and a significant lower mean age group of 30.14% for females compared to total mean age of the study population (38.17 years for males and 50 years for females). Maximum number of patients reported with numeric score of 9 using numeric rating scale and sharp, dull, deep, unpleasant type of pain using McGill pain questionnaire. Badel reported with a significant lower prevalence rate of 6.91% when compared to our study.[13] Similar results were obtained from Mendoza et al. and Jensen et al. with the quantity of pain of numeric score of 7-10 and sharp, dull, deep, unpleasant quality of pain.[14,15]

Sinusitis pain conditions showed a prevalence of 8.90% with male predominance at a mean age group of 25 years for males and a significant lower mean age group of 26.71% for females compared to total mean age of the study population (38.17 years for males and 50 years for females). Jaywant and Pai in 2003 stated that the numeric rating scale is more valid than other scales, and thus, in our study, we consider the numeric value of 3.[16]

Ear-related pain conditions showed prevalence rate of 6.99% with male predominance at a significant lower mean age group of 11.71 years for males 14 years for females compared to total mean age of the study population (38.17 years for males and 50 years for females). Similar kinds of results were obtained from Smart et al. with similar prevalence rate,[17] Bhattacharya (2009) stating male prevalence,[18] and Teixido and Carey (2014) analyzed similar type of quality of pain.[19]

Throat and neck disorder pain conditions showed prevalence rate of 6.29% with male predominance at a significantly lower mean age group of 28 years for males and 31.8 years for females compared to total mean age of the study population (38.17 years for males and 50 years for females). Similar kinds of results were obtained from Sommer et al. for the quantity of pain.[20]

Psychogenic oral pain conditions showed a prevalence of 5.47% with male predominance with a significant high mean age group of 49.28 for males and lower mean age group of 31.71 for females compared to total mean age of the study population (38.17 years for males and 50 years for females). Similar kinds of results were obtained by Qazi et al. with a prevalence rate of 5.03%.[21]

**Conclusion**

This is a pioneer study for wide range of pain conditions in this population. The study results were discussed briefly in the article,
as of whole TMJ/musculoskeletal disorders pain conditions was more prevalent for this population and overall for all conditions, pain was more prevalent among male gender. Specifically, sinusitis pain condition showed the disparity in numeric rating scale and descriptive rating scale.

In future, this study can be carried out as a multicentric approach, with a comparison of various scale efficiency. And also, posttreatment pain character can also be assessed.

### Clinical significance

Multiple scales should be used to measure the intensity of pain, and McGill pain questionnaire to analyze the quality and character of pain gives a fair idea about the patient’s quality of life, providing baseline information about non-odontogenic orofacial pain, and also to understand the patients suffer and accordingly to maintain a rapport with the patient which is plays a basic role in pain management.

### References
