



Prevalence of orofacial Pain among working adults - A Retrospective Study

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ABSTRACT

Orofacial pain can be defined as a discipline of dentistry that deals with the diagnosis and management of different types of pain pertaining to the orofacial region such as the trigeminal neuralgia, atypical facial pain, postherpetic neuralgia, etc. The aim of the current study is to determine the prevalence of Orofacial Pain among working adults. The retrospective study involved the analysis of the case sheets of the patients with orofacial pain in the stipulated time frame and assessment based on the following parameters: age, gender, the type of orofacial pain, working status—statistical analysis calculated by chi-square test. A p-value <0.05 was considered significant. The prevalence of orofacial pain was 0.08% with a female - to - the male ratio of 1.06: 1 and working adults to non-working adults ratio of 1.36: 1. Trigeminal neuralgia shows a male-female ratio of 1.18: 1 and higher prevalence of Atypical facial pain in females (15.15%). According to our study, it can be concluded that orofacial pain was more prevalent in females. The prevalence of Trigeminal Neuralgia was higher in males and Atypical facial pain was the most prevalent type in females.

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INTRODUCTION

Pain can be defined as an unpleasant sensory experience or emotional experience that is associated with actual or potential tissue damage or can be described in such terms as stated by the International Association for the Study of Pain (IASP). Going by the definition, pain is an unpleasant experience with injury being the major cause and is primarily a subjective symptom rather than an objective sign.

Taking a look at the pages of history, the pain has been defined by Plato as arising from within the body and indicating that it is more of an emotional experience (Kumar and Elavarasi, 2016; Venugopal and Maheswari, 2016). Over the times, the pain has evolved into a multi-dimensional entity that involves

sensory, cognitive, motivational and emotional qualities. Pain, in general, is one of the most common complaints bringing an individual to the physician's notice. (Chaitanya *et al.*, 2017)

Orofacial pain has been defined by American Academy of Orofacial Pain (AAOP) as the speciality of dentistry that encompasses the diagnosis, management and treatment of pain disorders in the jaw, mouth, face and associated regions. The etiology of orofacial pain is a multifactorial one. (Subashri and Maheshwari, 2016)

Based on etiology, Orofacial pain has been classified into the seven following categories:

1. Neurologic
2. Vascular
3. Musculoskeletal
4. Oral and Perioral
5. Psychosomatic
6. Connective Tissue Disorders and
7. Referral pains (Rezaei *et al.*, 2017; Maheswari *et al.*, 2018)

The neurologic pain category which includes cranial neuralgia, nerve trunk pain and differentiation pain, has further been classified into

1. Trigeminal Neuralgia
2. Cyclossopharyngal Neuralgia
3. Sphenopalatine Neuralgia
4. Occipital Neuralgia
5. Nerves intermediate Neuralgia
6. Superior Laryngeal Neuralgia
7. Poet Herpetic Neuralgia and
8. Atypical facial pain / Atypical odontalgia (Rezaei *et al.*, 2017)

The prevalence of Orofacial Pain (OFP) has been assuming variations in different populations, based on the etiology involved. According to Maulina (2018), the prevalence of Orofacial pain in the Indonesian population was high, and a significant correlation between the monthly income and pain in TMJ has been reported (Saman *et al.*, 2019; Misra *et al.*, 2015). In the Portuguese population, only 5 - 15% reported with Orofacial Pain as their primary

complaint. Kumar *et al.* (2016) have reported the prevalence of Orofacial Pain to be 17.4% in the early adolescents of Indian Population.

The existing literature has reported different prevalence proportions for different age categories in different populations. However, there is no sufficient evidence regarding the association between orofacial pain and the working status of an individual (Steele *et al.*, 2015).

The aim of the study was to determine the association between the prevalence of Orofacial Pain and the working status of an individual and to evaluate the gender-based differences if there are any.

MATERIALS AND METHODS

Study setting

The retrospective study was carried out in an institutional setting, with the advantage of being a wide range of data availability in a digital format and the disadvantage being the assessment of a single location only. The approval of the Institutional Ethics Committee was sought (SDC/SIHEC/2020/DIASDATA/0619-0320) and the study involved one guide, one reviewer and one assessor.

Study design

The study was designed based on the set inclusion criteria of age above 20 years and orofacial pain as a chief complaint. Cases which did not fall under this inclusion criteria were excluded from the study. Also, patients with dental etiology of pain were excluded from the study.

Sampling technique

The study was based on non-probability convenience sampling. To minimise the sampling bias, all the case sheets of patients with orofacial pain diagnosis were reviewed and included.

Data collection and Tabulation

Data collection was done using the patient database with the timeframe work of 1st June 2019 to 30th April 2020. Case sheets of around 41,438 patients were reviewed. Cross verification of data was done by a reviewer. The collected data were tabulated based on the following parameters: Patient Details - name, age, gender, patient identification number; Working Status - working / non-working and type of orofacial pain like Trigeminal Neuralgia, Atypical Facial Pain and other types of orofacial pain.

Statistical analysis

The variables were coded, and the data was imported to SPSS. Using SPSS Version 20.0, categor-

ical variables were expressed in terms of frequency & percentage, and bar graphs were plotted.

The statistical significance of associations was tested using the Chi-square test.

RESULTS AND DISCUSSION

The valid sample size (N) of the study was 33. The prevalence of Orofacial Pain (excluding dental etiology), in the study population, was 0.08% (out of 41,438 patients)

The age distribution of Orofacial Pain exhibits a maximum age of 75 years, minimum age of 24 years and a mean age of 51.55 years.

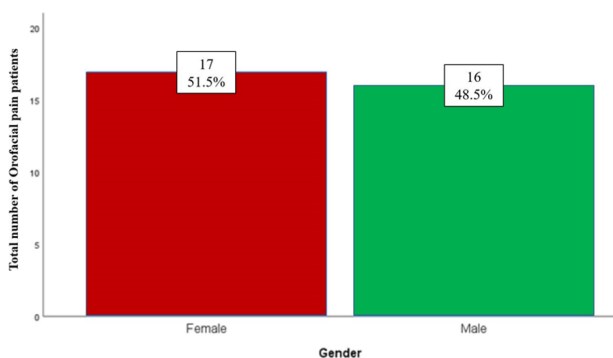


Figure 1: Bar graph depicting the gender-wise distribution of orofacial pain.

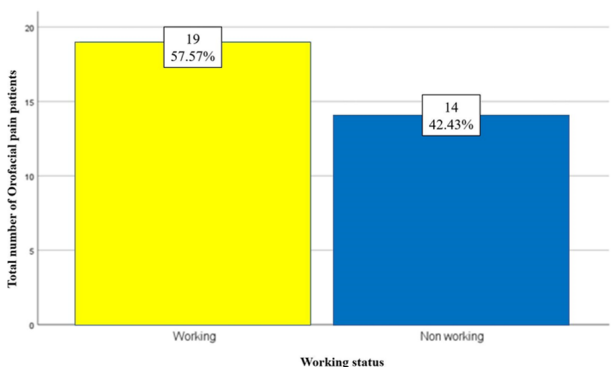


Figure 2: Bar graph depicting the distribution of orofacial pain based on the working status.

The gender wise distribution of Orofacial pain shows 51.5% (n=17) prevalence in females and 48.5% (n=16) prevalence in males and a Female - Male ratio of 1.06 : 1. X-axis - gender; Y-axis - total number of orofacial pain patients. The prevalence in females (red) was higher than in males (green) [Figure 1].

The distribution of orofacial pain based on the working status of the individuals is 57.57% (n=19) prevalence in working adults and 42.43% (n=14) prevalence in non-working adults and working - to - non-

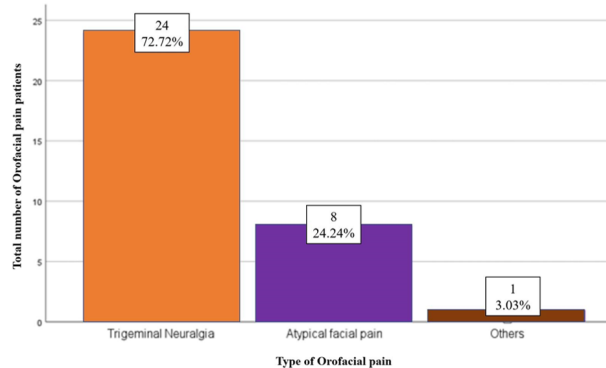


Figure 3: Bar chart depicting the distribution of different types of orofacial pain.

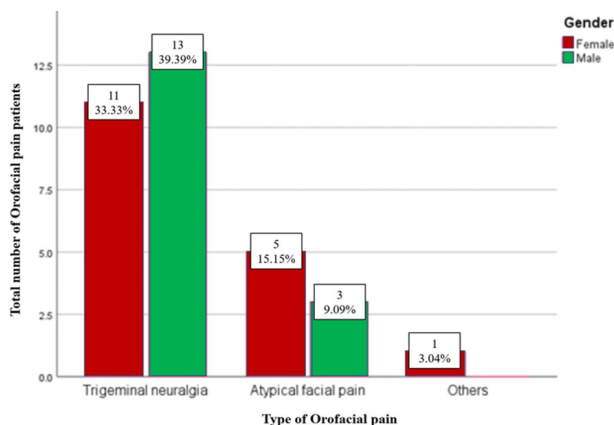


Figure 4: Bar graph depicting the association between gender and type of orofacial pain.

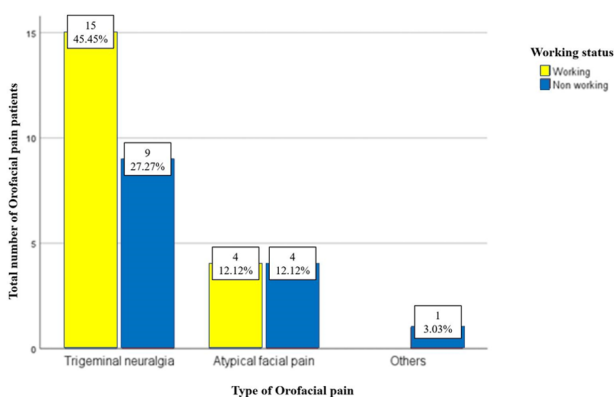


Figure 5: Bar graph depicting the association between working status and type of orofacial pain.

working adults ratio of 1.36: 1. X-axis - working status; Y-axis - total number of orofacial pain patients. The higher prevalence in working adults (yellow) than in non-working adults (blue). [Figure 2].

Based on the type of orofacial pain, Trigeminal Neuralgia shows the highest prevalence of 72.72% (n=24), Atypical facial pain was 24.24% (n=8) and other types with least prevalence of 3.03% (n=1). Under the category of other types of orofacial

pain, only one case of postherpetic neuralgia was recorded. X-axis - a type of orofacial pain; Y-axis - total number of orofacial pain patients. The highest prevalence of Trigeminal Neuralgia (orange) was observed. [Figure 3].

Evaluating the association between gender and type of orofacial pain, Trigeminal neuralgia was the most prevalent type in both females [33.33%, n=11] and males [39.39%, n=13]. The single case of postherpetic neuralgia was a female candidate [Figure 4]. However, this association does not hold any statistical significance. [Chi-square test, p-value 0.363>0.05]. X-axis - a type of orofacial pain; Y-axis -total number of orofacial pain patients in each gender. Trigeminal Neuralgia was the most prevalent type of orofacial pain in both females [red] and males [green].

Evaluating the association between the working status and type of pain, Trigeminal neuralgia is more prevalent among working adults than non-working adults with prevalence proportions of 45.45% (n=15) and 27.27% (n=9) respectively. Both populations showed an equal prevalence of Atypical facial pain [12.12%, n=4] and the single case of postherpetic neuralgia, was recorded in a non-working adult [3.03%, n=1], [Figure 5]. This association was also deemed statistically insignificant [Chi-square test, p-value 0.343>0.05]. X-axis - a type of orofacial pain; Y-axis - working status. Trigeminal Neuralgia showed higher prevalence in working adults [yellow] than in non - working adults [blue].

Orofacial pain is one of the most commonly addressed chief complaints by a dentist. In fact, orofacial pain is an emerging new dental speciality, focussing primarily on pain alleviation, removal of etiology, preventing recurrence and improving the quality of life of the individuals (Warnakulasuriya and Muthukrishnan, 2018). Orofacial pain disorders are the second most prevalent in a population following temporomandibular disorders, with the former showing a prevalence proportion of 2-3% on an average, as reported in the study by Friction and Crandall (2020). However, the study by Obermann et al. (2011) claims the prevalence to be 17-26% with about 7-11% of patients having it as a chronic condition. Of all the types of Orofacial pain, the two most common and highly reported forms are Trigeminal neuralgia and Atypical facial pain.

Trigeminal Neuralgia is defined by the International Headache Society (IHS) as a unilateral pain disorder that is characterised by brief electric shock-like pain, which is abrupt in onset and termination and is limited to the distribution of one or more divi-

sions of the trigeminal nerve (Obermann et al., 2011; Patil et al., 2018). Each episode of a TN attack lasts for a few seconds to minutes with a refractory period in between, when the patient feels absolutely normal (Chaitanya et al., 2018; Rohini and Kumar, 2017). A characteristic feature of Trigeminal neuralgia is the presence of certain trigger zones. The study by Zaidan has reported the prevalence of various trigger zone associations with trigeminal neuralgia with about 43.7% occurring intraorally in the premolar and molar areas, 18.7% at the upper lip, 15.5% at the angle of the mouth, 12.5% in the cheek and 9.3% in the preauricular area. The trigger zones are usually stimulated upon bright light, a gush of cold air, shaving, etc., In some patients, it is accompanied by tic like cramps of the facial muscles, contributing to the nomenclature 'Tic-douloureux' (Dharman and Muthukrishnan, 2016; Muthukrishnan et al., 2016).

The study by Obermann et al. (2011), reports an incidence of TN to be 4.3 per 100000 persons per year with an approximate female to male ratio of 2:1. A similar incidence and female to male ratio has been reported by Manzoni and Torelli (2005), with about 57.33% of patients affected on the right side. The study also reveals the association of Trigeminal neuralgia with other pathologies like multiple sclerosis, glossopharyngeal neuralgia, Charcot-Mary tooth neuropathy and Arterial hypertension. El-Tallaway et al. (Ravi et al., 2004), in their study in the population of Al-Quezir city, Egypt reveals that out of 13,541 people who have screened only 4 female patients with Trigeminal neuralgia were identified. Of these, 3 patients had right-sided pain and associated co-morbidities were psychiatric disorders in 75% of cases and hypertension in 50% of cases. Similarly, De Toledo et al. (2016), in the systematic review have reported the higher prevalence of TN in women with a range of 0.03-0.3% and a female to male ratio of 3:1. The age group found to be most affected were those between 37 years and 67 years.

In the current study, the prevalence of trigeminal neuralgia among all other types of Orofacial pain was found to be 72.72%. However, contradictory to the existing literature, Trigeminal neuralgia showed a male predilection in the current study population, with a male to female ratio of 1.18:1 and higher prevalence among the working adults 45.45%. However, all studies pertaining to Trigeminal neuralgia point out a common finding: it is the most prevalent among all other types of Orofacial pain. This is of concern, as a study by Allsop et al. (2015), has revealed the impact of Trigeminal neuralgia leading to nutritional deficit due to fear of pain

upon chewing and associated social withdrawal and emotional instability. Hence, perfect diagnosis and prompt treatment of trigeminal neuralgia are highly necessary (Subha and Arvind, 2019).

Another common form of Orofacial pain is Atypical facial pain. AHS has defined atypical facial pain [Persistent Idiopathic Facial Pain] as “a persistent facial pain that does not have the characteristics of cranial neuralgias, presents daily and persists for all or most of the day. The pain is confined at the onset to a limited area on one side of the face and is deep and poorly localised” (Obermann et al., 2011). The pain commonly has its onset from the nasolabial fold or the side of the cheek. Its diagnosis is confirmed only after ruling out other etiologies of Orofacial pain and neurologic disorders if any (Muthukrishnan and Kumar, 2017; Obermann et al., 2011; Weiss et al., 2017). The prevalence of this Atypical facial pain has been reported in a study by Oberman et al., to be between 17% and 26% with prevalence increasing as age increases. The female to male ratio has been found to be 2:1. A similar prevalence proportion of Atypical facial pain has been recorded in the current study, 24.24% with high female prevalence, 15.15% and a female to male ratio of 1.67:1.

The diagnosis of Atypical facial pain is critical. According to Obermann et al. (2011); Weiss et al. (2017), whenever a clinician encounters a patient with neuropathic facial pain and in which the symptoms do not match with more common etiologies, the diagnosis of Atypical facial pain must be considered.

Among other types of facial pain, only Postherpetic neuralgia has been reported in the current study. According to Manzoni and Torelli (2005), about 10% of cases with acute zoster eventually develop postherpetic neuralgia. No gender predilection has been reported. In the current study, only one case was reported, the patient being a working female.

On the whole, the prevalence of Orofacial pain in Tamil Nadu is 0.08% which is way lower than the prevalence proportions in other populations (Choudhury, 2015). Orofacial pain shows a classic female predilection with a female to male ratio of 1.06:1, which is similar to the results of other studies in different populations (Shaefer et al., 2018; Smiljic et al., 2016; Macfarlane et al., 2009). The mean age of the population reporting with Orofacial pain was 58.5 years. Trigeminal neuralgia was the most reported type. However, it showed a male predilection in the current study, contradictory to the results of other studies.

The existing literature lacks evidence about the prevalence of orofacial pain in working adults. The

current study reveals significant findings in this dimension with high prevalence in working adults, 57.57% and a working adult to non-working adult ratio of 1.36:1.

The associations between gender and type of pain and working status and type of Orofacial pain, as evaluated by the current study, were not of statistical significance.

The field of Orofacial pain is of classic importance because of the impact it creates on the lives of individuals, according to Macfarlane et al. (2009). Higher levels of psychological distress were associated with increased risk of Orofacial pain. The frequency of physical, and psychosocial impact was 2.28 times higher in patients with orofacial pain, as reported in the study by De et al. (2011); Macfarlane et al. (2009). Orofacial pain was also higher in individuals of socially deprived areas (Joury et al., 2018).

Though the current study possesses few limitations like very small sample size, the aspect of working status in adults with Orofacial pain, that has often been overlooked, has been covered by this study and will serve as an eye-opener for further research.

CONCLUSION

According to the current study, it was concluded that Orofacial pain was more prevalent among females, and higher prevalence is observed in working adults. Trigeminal neuralgia shows male predilection, while Atypical facial pain shows female predilection.

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Conflict of Interest

The authors declare that they have no conflict of interest for this study.

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