

## A Retrospective Analysis of the Gender Difference in the Oral Hygiene Status of Patients in the Age Group of 18-25 Years

Research Article

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### Abstract

Oral health is considered as the quality of health that enables an individual to socialize easily without any active disease, discomfort, or embarrassment, which impacts general well-being. One of the major public health problems is oral disease, which has higher prevalence and significant social impact. To improve oral health in a community, it is essential to have oral health-related knowledge. The aim of this study is to evaluate the gender difference in oral hygiene status of the patients in the age group of 18-25 years. A retrospective study was conducted among the patients who visited Saveetha Dental College & Hospitals for their treatment. The OHI-S status of the patients was assessed. A total of 4311 patients were included in the study. Data comprising OHI-S and the gender of all the patients were collected. The obtained data were statistically analyzed by using SPSS software of version 23. The results showed that 62% of the involved patients were males and the remaining 38% were females of the total study population. Among which the males had better oral hygiene status when compared with that of the females participated ( $p < 0.05$  which is statistically significant). Within the limits of the present study, male patients in the age group of 18-25 years had better oral hygiene when compared to that of the females.

**Keywords:** Brushing Habits; Gingivitis; OHI-S; Oral Hygiene; Young Adults.

### Introduction

Oral health can be defined as being free of oral microbes; it is “a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual’s loss, in biting, chewing, speaking, and psychosocial well-being” [8]. There are a number of generally accepted measures that both the genders are advised to maintain their oral health with minimizing alcohol consumption, ceasing to use tobacco, engage in physical activity, and practice good general health maintenance measures, such as eating a healthy diet. Maintaining good oral health is important to being a healthy individual and has a role in an individual’s longevity and happiness.

During the last 30 years, several studies have been conducted all over the world in order to investigate the possible gender differ-

ences in oral health status and behavior in populations of various age groups and characteristics. Most of these studies concluded that females bear a higher burden of dental caries compared to males. This is mainly due to the higher caries prevalence among females which has been traditionally attributed to the earlier tooth eruption among girls and hence, longer exposure of their teeth to the cariogenic oral environment, easier access to food supplies by women and frequent snacking during food preparation, nutritional changes during pregnancy, and the social factors like women's social role in the society and family, ritual fasting [21]. Recently, evidence has been provided to demonstrate that higher caries rates in women may also be explained by differences in salivary composition and flow rate. On the other hand, it is generally accepted that with the exception of puberty and pregnancy, females exhibit lower periodontal diseases prevalence and severity than males [12]. This difference is mainly attributed to better oral health behavior and hygiene status among females while hormo-

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nal and other physiological and behavioral differences between the two genders may also contribute to the higher risk for periodontal diseases in males than in females.

The major complication that may occur due to the poor oral health which can affect both the hard and soft tissues of the oral cavity, they may even lead to the complications associated with salivary composition ('Relationship Between Dental Caries And Oral Hygiene Status Of 8 To 12 Year Old School Children', 2007). Dental caries have been more prevalent among the patients with poor oral hygiene and they can also lead to the disease of the gums and its associated structures such as gingivitis, periodontitis etc [15, 16]. Periodontal disease is a chronic bacterial infection characterized by persistent inflammation, connective tissue breakdown and alveolar bone destruction [23, 2]. Periodontal tissue destruction is demonstrated by clinical attachment loss with formation of deep pockets with severe continuous bleeding and probing. Progression of the periodontal disease can further trigger the adaptive immune mechanism for release of inflammatory mediators resulting in further periodontal breakdown [10, 11, 19]. The association of various herpes viruses with several types of periodontal disease has been established by many studies [13]. Among the viruses, cytomegalovirus (CMV), Torque Teno Virus (TTV) and the Epstein barr virus (EBV) plays a major role in the development of periodontal disease [18]. The reduction or to get rid of this periodontal pocket is one of the goals of periodontal therapy. Plaque build-up allows the growth of anaerobic bacteria, which eventually leads to the activation of neutrophils [7]. This results in the up-regulation of proinflammatory cytokines, leading to the release of neutrophil enzymes.hence,prolonged exposure of connective tissue results in its degradation and the subsequent loss of ligamentous support and alveolar bone, eventually leading to tooth loss.

Periodontal therapy has been directed primarily at the elimination of disease and maintenance of a functional, healthy denti-

tion and supporting tissues [22]. Chemical antiplaque agents such as varnishes, dentifrices, and mouthwashes are used to improve oral health care. The use of mouthwash affects both the bacterial and plaque growth [14-16]. Previously, our team had conducted numerous clinical trials and now we focussed on epidemiological studies [5, 6, 15-17]. The aim of this study is to evaluate the gender difference of the oral hygiene status of patients in the age group of 18-25 years.

### Materials And Methods

This research was conducted among the patients of Saveetha Dental College & Hospitals. A total of 86000 patient records were reviewed and analyzed between June 2019 and March 2020 out of which 4311 patients in the age group of 18 to 25 years were included in the study. Ethical approval was obtained from the institutional ethical committee (ethical approval number: SDC/SIHEC/2020/DIASDATA/0619-0320). This was cross verified with the clinical photographs for errors. The study population was clearly identified and random sampling technique was followed. Hence the sampling bias was minimized. The OHI-S status of the patients was assessed. Data was collected and tabulated in an excel sheet. Incomplete data was excluded. Statistical analysis was done using SPSS version 23. Since, this study is a retrospective study correlation and association was performed statistically by Chi- square test.

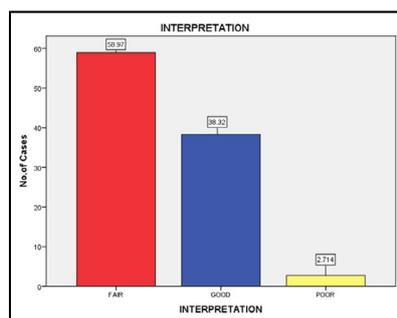
### Results & Discussion

The results showed that among the study population, the gender distribution of the patients involved were 62% of males and 38% of females [Table 1]. 59% of the study population had fair oral hygiene, 38% had good oral hygiene and 3% had poor oral hygiene. [Figure 1]. The correlation between the gender and the interpretation of the oral hygiene status of the individual showed

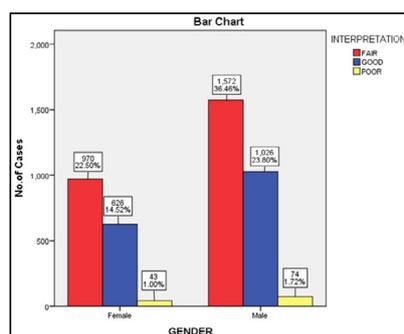
**Table 1. Table showing the gender distribution of the study population, in which males (62%) and females (38%) are involved.**

Gender Distribution			
		Frequency	Percentage
Gender	Female	1639	38
	Male	2672	62
	Total	4311	100

**Figure 1. Bar Graph showing the distribution of the OHI-S interpretation among the study population. X-axis denotes the OHI-S interpretation and the Y-axis denotes the number of patients. Red colour denotes fair, blue colour denotes good and yellow colour denotes poor OHI-S interpretation. 59% of the study population had fair oral hygiene, 38% had good oral hygiene and 3% had poor oral hygiene.**



**Figure 2. Bar Graph depicting the association between the gender and the OHI-S interpretation. X-axis denotes the gender and the Y-axis denotes the number of cases. Red colour denotes fair, blue colour good and yellow colour denotes poor OHI-S interpretation. Males have better oral hygiene status than that of the females, however it is not statistically significant. (Chi-square test; p-value =0.945 (p>0.05)- not statistically significant).**



that the males had better oral hygiene status compared to females [Figure 2]. However it was statistically non-significant [ $p>0.05$ ]. Other studies (Lukacs, 2011) have stated that the males (89%) have significantly better oral hygiene status when compared to that of females. The better oral hygiene status reported among the males has been attributed to the better oral health care seeking behaviour exhibited by the males as compared with that of the females [3].

Oral health and the quality of the oral health care contribute to holistic health, which should be a right other than a privilege [4]. In this study the OHI-S interpretation of good mainly indicates the patients with the better oral hygiene status and shows that the males have this particular interpretation more when compared with that of the females [1]. This study mainly has contradictory findings to the other studies which show that the females showed better oral hygiene status than that of the males ('Relationship Between Dental Caries And Oral Hygiene Status Of 8 To 12 Year Old School Children', 2007).

The present study was single centered and data collected from a fixed time frame. The main future scope of this particular study was to have extensive research in order to find awareness, practice and maintenance of the oral hygiene status among the young adult population. Future studies can be conducted in a multicentre approach with considerably large sample size and with various ethnicities in different age groups.

## Conclusion

From the above done retrospective study, the oral hygiene status among the patients of the age group 18-25 years was found to be better among the males when compared to that of the females. Thus this study helps in providing and educating the young population with the proper oral hygiene status and with proper brushing techniques as a preventive measure for their oral health and improve quality of life.

## Authors Contributions

S.Vignesh carried out the retrospective study, participated in the sequence alignment and drafted the manuscript. Dr. M. Jeevitha and Dr. Arvina Rajasekar conceived the study and participated in its design and coordination and helped to draft the manuscript. All authors read and approved the final manuscript.

## References

- Albandar JM. Global risk factors and risk indicators for periodontal diseases. *Periodontology* 2000. 2002 Apr;29(1):177-206.
- Avinash K, Malaippan S, Dooraiswamy JN. Methods of Isolation and Characterization of Stem Cells from Different Regions of Oral Cavity Using Markers: A Systematic Review. *Int J Stem Cells*. 2017 May 30;10(1):12-20. Pubmed PMID: 28531913. /
- Ferraro M, Vieira AR. Explaining gender differences in caries: a multifactorial approach to a multifactorial disease. *Int J Dent*. 2010;2010:1-5. Pubmed PMID: 20339488.
- Jenkins WM, Papapanou PN. Epidemiology of periodontal disease in children and adolescents. *Periodontology* 2000. 2001 Jun;26(1):16-32.
- Kavarthapu A, Thamaraiselvan M. Assessing the variation in course and position of inferior alveolar nerve among south Indian population: A cone beam computed tomographic study. *Indian J Dent Res*. 2018 Jul-Aug;29(4):405-409. Pubmed PMID: 30127186.
- Khalid W, Vargheese SS, Lakshmanan R, Sankari M, Jayakumar ND. Role of endothelin-1 in periodontal diseases: A structured review. *Indian J Dent Res*. 2016 May-Jun;27(3):323-33. Pubmed PMID: 27411664.
- Khalid W, Vargheese SS, Sankari M, Jayakumar ND. Comparison of Serum Levels of Endothelin-1 in Chronic Periodontitis Patients Before and After Treatment. *J Clin Diagn Res*. 2017 Apr;11(4):ZC78-ZC81. Pubmed PMID: 28571268.
- Lateefat S, Musa OI, Kamaldeen AS, Buhari AS, Saka AO. Determinants of oral hygiene status among junior secondary school students in Ilorin West local government area of Nigeria. *IOSR J Pharm Biol Sci*. 2012 Nov;1(1):44-8.
- Lukacs JR. Sex differences in dental caries experience: clinical evidence, complex etiology. *Clin Oral Investig*. 2011 Oct;15(5):649-56. Pubmed PMID: 20652339.
- Mootha A, Malaippan S, Jayakumar ND, Vargheese SS, Toby Thomas J. The Effect of Periodontitis on Expression of Interleukin-21: A Systematic Review. *Int J Inflamm*. 2016;2016:1-8. Pubmed PMID: 26998377.
- Panda S, Jayakumar ND, Sankari M, Vargheese SS, Kumar DS. Platelet rich fibrin and xenograft in treatment of intrabony defect. *Contemp. Clin. Dent*. 2014 Oct;5(4):550-554.
- Philip P, Rogers C, Kruger E, Tennant M. Oral hygiene care status of elderly with dementia and in residential aged care facilities. *Gerodontology*. 2012 Jun;29(2):e306-11. Pubmed PMID: 21507056.
- Priyanka S, Kaarthikeyan G, Nadathur JD, Mohanraj A, Kavarthapu A. Detection of cytomegalovirus, Epstein-Barr virus, and Torque Teno virus in subgingival and atheromatous plaques of cardiac patients with chronic periodontitis. *J Indian Soc Periodontol*. 2017 Nov-Dec;21(6):456-460. Pubmed PMID: 29551863.
- Ramamurthy JA, Mg V. Comparison of effect of hiora mouthwash versus chlorhexidine mouthwash in gingivitis patients: a clinical trial. *Asian J. Pharm. Clin. Res*. 2018;11(7):84.
- Ramesh A, Vargheese SS, Jayakumar ND, Malaippan S. Chronic obstructive pulmonary disease and periodontitis—unwinding their linking mechanisms. *J. Oral Biosci*. 2016 Feb 1;58(1):23-6.
- Ramesh A, Vargheese SS, Dooraiswamy JN, Malaippan S. Herbs as an antioxidant arsenal for periodontal diseases. *J Intercult Ethnopharmacol*. 2016 Jan 27;5(1):92-6. Pubmed PMID: 27069730.
- Ramesh A, Vellayappan R, Ravi S, Gurumoorthy K. Esthetic lip reposition-

- ing: A cosmetic approach for correction of gummy smile - A case series. *J Indian Soc Periodontol.* 2019 May-Jun;23(3):290-294. Pubmed PMID: 31143013.
- [18]. Ramesh A, Ravi S, Kaarthikeyan G. Comprehensive rehabilitation using dental implants in generalized aggressive periodontitis. *J Indian Soc Pedod.* 2017 Mar;21(2):160-163.
- [19]. Ravi S, Malaiappan S, Varghese S, Jayakumar ND, Prakasam G. Additive Effect of Plasma Rich in Growth Factors With Guided Tissue Regeneration in Treatment of Intrabony Defects in Patients With Chronic Periodontitis: A Split-Mouth Randomized Controlled Clinical Trial. *J Periodontol.* 2017 Sep;88(9):839-845. Pubmed PMID: 28474968.
- [20]. Rai B, Rajnish J, Duhan J, Anand SC. Relationship between dental caries and oral hygiene status of 8 to 12 year old school children. *Int. J. Epidemiol.* 2007;1540-2614.
- [21]. Rinaldy E, Muhibat S, Suwargiani AA. The difference of oral hygiene status between ethnic group Minang and Sundanese in Pangalengan aged 26-45 years old. *Padjadjaran J Dent.* 2013 Mar 31;25(1).
- [22]. Thamaraiselvan M, Elavarasu S, Thangakumaran S, Gadagi JS, Arthie T. Comparative clinical evaluation of coronally advanced flap with or without platelet rich fibrin membrane in the treatment of isolated gingival recession. *J. Indian Soc. Periodontol.* 2015 Jan;19(1):66-71.
- [23]. Varghese SS, Thomas H, Jayakumar ND, Sankari M, Lakshmanan R. Estimation of salivary tumor necrosis factor-alpha in chronic and aggressive periodontitis patients. *Contemp Clin Dent.* 2015 Sep;6(Suppl 1):S152-6. Pubmed PMID: 26604566.