

Original Research

Comparison of Knowledge, Awareness and Practices About Periodontal Health And Disease Among Undergraduates And Post Graduates In Government Dental College Srinagar: A Cross Sectional Study

¹Bushra Iftikhar, ²Suhail Majid Jan, ³Roobal Behal

¹Postgraduate Student, ²Professor and Head, ³Associate Professor, Department of Periodontics, Govt. Dental College and Hospital, Shireen Bagh, Srinagar, India

ABSTRACT:

Introduction: For the maintenance of healthy periodontium, proper knowledge about the factors affecting periodontal health is important. Similarly, proper application of that knowledge to prevent or treat periodontal diseases is of surmount importance. Dentists are expected to be best persons to keep know how of the same and deliver their knowledge to patients regarding overall oral health particularly neglected part – periodontal health. **Materials and Methods:** A questionnaire based survey consisting of three parts with questions about knowledge and awareness about periodontal health and disease, and personal hygiene practices was distributed among the undergraduate and postgraduate dental students of Government Dental College and Hospital, Srinagar. **Results:** Results showed that postgraduates had better overall knowledge and awareness about normal healthy periodontium, hygiene practices and symptoms & signs of periodontal disease as compared to undergraduate dental students. **Conclusion:** There is a scope for improvement in knowledge and practices of dentists regarding the maintenance of healthy periodontium and prevention of periodontal disease.

Key Words: Periodontal Health, Periodontal disease, awareness, hygiene practices.

Received: 13 May, 2022

Accepted: 18 June, 2022

Corresponding author: Bushra Iftikhar, Postgraduate Student, Department of Periodontics, Govt. Dental College and Hospital, Shireen Bagh, Srinagar, India

This article may be cited as: Iftikhar B, Jan SM, Behal R. Comparison of Knowledge, Awareness and Practices About Periodontal Health And Disease Among Undergraduates And Post Graduates In Government Dental College Srinagar: A Cross Sectional Study. J Adv Med Dent Sci Res 2022;10(7):90-96.

INTRODUCTION

Periodontal health is the absence of signs and symptoms of gingival and destructive periodontal diseases or any tissue status outside of the normal range. On the other hand, periodontal disease affects the various components of the periodontium or only one of them and is a multifactorial disease, whose consequences are seen in different parts of the body, affecting different remote organ systems and causing unwanted events for medically compromised people.^[1] The periodontal disease is a global disease, and is one of the major oral health issues worldwide. The National Health and Nutrition Examination Survey conducted between 2009 and 2012 among the adults in the United States of America (USA) confirms a high prevalence of periodontitis with almost 50% being affected.^[2] In India, Kumar et al. assessed the prevalence and severity of periodontal diseases in type 2 diabetes mellitus (DM) among

1000 participants and found the prevalence of periodontitis to be 91.7%.^[3]

The untreated periodontal disease leads towards more complicated situations for oral cavity structures, bone resorption, mobility of teeth, and tooth loss are the most common consequences. In addition, the consequences of periodontal diseases can even go beyond this. The relation between the periodontal diseases and systemic diseases has been discussed in many ways through the literature, and the presence of bidirectional relationship between them has been hypothesized. Many systemic diseases were discussed through the literature. They include cardiovascular diseases (CVDs), DM, adverse pregnancy outcomes, and osteoporosis. Debatable results are present around most of the systemic conditions in their association with the periodontal diseases, but many association studies have reported supporting results, and there is evidence that this association has a biologically feasible basis.^[4]

Awareness regarding oral health is considered to be an essential prerequisite for health-related behavior. The impact of oral health-related problems with special emphasis on periodontal health has been well documented in literature.^[5] Dental students are representative of the educated, influential, and motivated class of individuals and are supposed to have a better perception and realization of maintaining oral health when compared to the general population. Hence the aim of this study is to assess the periodontal health practices and awareness among dental undergraduates and post graduates students.

MATERIAL AND METHODS

A cross-sectional study was conducted among the students of government dental college, Srinagar. All the undergraduate students and the postgraduates from all specialities participated in the study. Ethical clearance was obtained from the Institutional ethical committee. Only the students studying in the Government Dental College, Srinagar were taken for the study.

For data collection, a self-developed, self-administered questionnaire was constructed. The questionnaire comprised of 28 questions divided into three parts. The first part included baseline knowledge of the participants regarding periodontal health. The second part of the questionnaire included questions to investigate the baseline knowledge of the participants regarding periodontal disease while the third part was designed to assess the practice and awareness of the participants toward personal and professional oral hygiene measures.

RESULTS

380 Students responded to our study. Amongst 380 respondents, 300 were undergraduates and 80 were post-graduates. 51.84% were males and 48.15% were females.

Results showed that majority of dental students were aware of proper brushing technique for good oral health with all of students agreeing about the necessity of good oral hygiene for maintenance of healthy periodontium. All of the students were aware of the negative effects of smoking on periodontal health with almost all students considering the role of genetics in periodontal health. Post-graduates were more aware of effects of cardiovascular diseases, diabetes, obesity and hormonal derangements on the periodontal health as compared to undergraduate students.

In the second part of the questionnaire post graduates were found out to have a better knowledge and awareness about causes, progression and signs and symptoms of periodontal disease. Results from the last part of the questionnaire that was about personal hygiene practices showed a mixed response, with post-graduates practicing better personal hygiene and undergraduates were better at professional hygiene measures.

DISCUSSION

A total of 380 dental students; 300 under- graduates and 80 post-graduates participated in the survey. The study groups were of unequal numbers owing to the larger number of graduates as compared to post-graduates. The major finding in this survey was that the post graduates had a better knowledge and awareness about periodontal health, progression of periodontal diseases, association between systemic conditions and disease and periodontium than undergraduate dental students of Government Dental College, Srinagar. However, it was seen that post graduates also showed better personal hygiene measures and it was noted that the undergraduates adopted better professional hygiene measures than post-graduates.

The survey was divided in three parts; first part was concerned with periodontal health. Both mechanical and chemical plaque control methods are an important component of oral health promotion^[6] and knowledge regarding them comprises an important part of it. Modified bass method/ bass method is found out to be better method of plaque removal as compared to other methods^[7] and both the study groups had knowledge about it. Regarding the periodontal health, it is well known that periodontitis is a multifactorial disease with genetics being an important component⁸ post-graduates and undergraduates had comparable knowledge about it. Smoking is a risk factor for periodontal disease and there is strong evidence regarding its adverse effect on periodontal health, indicated by many previous studies,⁹ both the groups had the understanding and knowledge of the relation between smoking and periodontal health. Also it is seen that systemic diseases can influence periodontal health, such as a link between periodontal diseases and cardiovascular diseases has been established,^{10,11} also obesity adversely affects periodontium¹¹. It was reported that, worldwide 6.28% of the population suffered from type-2 diabetes in the year 2017 and with each passing year the figures are rising¹², a bi-way relationship between diabetes and periodontitis has been established.¹³ Hormones constitute a major part of normal functioning of the human body. Deranged hormones such as female sex hormones,¹⁴ thyroid hormone,¹⁵ adrenal hormones¹⁶ etc adversely affects the periodontal function and health and knowledge about these conditions constitute an important part of the understanding the periodontium in relation to systemic health and vice-versa. All the dental students must have a knowledge and understanding of all these associations. Results of the survey showed that post graduates had better knowledge of these associations than undergraduates. Among post graduate dental students ,100 % results were found regarding effect of deranged hormones and periodontium and also regarding effect of diabetes on periodontal health, 85% of the postgraduates were aware about the relation between cardiovascular

diseases and periodontal diseases and only 70% were aware about an association between obesity and periodontium while among the undergraduates the percentage were about 92%, 95% , 76% and 46% respectively.

The second part of the survey was about the cause of periodontal diseases, signs and symptoms and its risk factors. Plaque and oral bacterial constitute an important cause of periodontal diseases,¹⁷ trauma from occlusion can cause bone loss in moderate periodontitis cases.¹⁸ In this study, post graduates had better knowledge about cause of periodontitis (55%) than undergraduates (29%). Also, when taking trauma from occlusion into consideration, post graduates had better knowledge about it (100%) than undergraduates (95%). Regarding the signs and symptoms of periodontitis post graduates of dental college Srinagar had better knowledge and understanding than undergraduates. 100% of the post graduates had knowledge about risk factors associated with periodontal disease such as osteoporosis¹⁹ and stress¹⁶ while only 88% and 89% respectively of the undergraduates had knowledge about the same. In literature an association between periodontitis and some of the problems with pregnancy such as premature delivery, low weight at birth and preeclampsia (PE) has been suggested.²⁰ Post-graduates (100%) had better knowledge about it than undergraduates (93%).

The third part of the survey was about personal and professional hygiene measures. It was found that post-graduates practiced better personal hygiene measures. In the present study, the percentage of dental post graduates (45%) who brushed twice daily was considerably low when compared to undergraduates (69%). Greater percentages (80% in postgraduates and 67% in undergraduates) were recorded in a previous survey by Singh et al.,²¹ Ghasemi et al. (73%),²² Tseveenjav et al. (81%),²³ and Almas et al.²⁴ than our survey. However our results are comparable to study by Gopinath (55.9%)²⁵. However they did not classify the dentists as undergraduates and post graduates. Also, Singh et al reported that 62.3% of post graduates and 48.2% of undergraduates replaced their tooth brush every 3 months,²¹ however in our survey it was reported that 80% of the post graduates and 71% of undergraduates replaced their tooth brush every 3 months.

Oral health care professionals generally recommend at least 2 minutes brushing, and yet the average brushing time in the general population is closer to 45 seconds.²⁶ It is reported in a study that brushing for 180 seconds removed 55% more plaque than brushing for 30 seconds. Brushing for 120 seconds removed 26% more plaque than brushing for 45 seconds.²⁶ Ashley has recommended 3 min as the ideal duration for manual brushing.²⁷ In this survey

80% of post-graduates brushed for 2 mins and only 66% of undergraduates brushed for 2 min.

Fluoride containing tooth paste was used on a regular basis by 55% of the dentists as reported by Gopinath²⁵ while Tseveenjav et al.²³ revealed that 62% of Mongolian dentists were using fluoridated tooth paste and Ghasemi et al. reported 74% of Iranian dentists using fluoridated tooth paste.²² Similar results were reported by Doshi et al.²⁸ and Vaish et al.²⁹ However, in the current study the percentage is greater than all the previous surveys with 100% of post graduates and 83% of undergraduates reported using a fluoridated tooth paste.

Regular dental visits are recommended every 6 months. In our survey only 20% of post graduates and 34% of undergraduates have reported visiting dentist every 6 months and 35% post-graduates and 45% undergraduates reported performing oral prophylaxis every 6 months. With majority of them (55% post-graduates and 37% undergraduates) visiting dentist in time of need. This trend is opposite to that reported in previous study by Singh et al²¹ who reported 27.4% of post graduates and 16.1% of undergraduates visiting dentist every 6 months and 28% post-graduates and 22.2% undergraduates performing oral prophylaxis every 6 months. In their study, among undergraduates majority of the participants visited the dental clinic only in case of any dental ailment, whereas post graduates went in for regular dental checkups²¹. Gopinath,²⁵ Ghasemi *et al.*²² and Tseveenjav *et al.*²³ reported in their studies that approximately 40% of the South Indian dentists, 41% of Iranian dentists, 75% of the Mongolian dentists respectively visited dental clinic at least once a year.

It has been found that daily use of dental floss not only prevents periodontal disease but also lowers the risk of cardiovascular disease.³⁰ Gopinath in his study reported that quite a low number i.e., around 9.2% of the Indian dentists used floss²⁵ while as 54% of the Iranian dentists were found to use floss at least once a day.²² However, in the study by Singh et al,²¹ it was reported that 21.4% post graduates and 16.8% undergraduates used floss daily. However, in our survey 25% post graduates and 23% undergraduates reported using floss daily.

SUMMARY AND CONCLUSION

Dentists are expected to exhibit meticulous oral hygiene procedures as compared to the general public. However, the results of the present study reveal that the oral hygiene practice of dentists in both groups is far from ideal. Also, in case of graduates oral health status and attitude towards dental treatment lags in comparison to the post-graduates. Hence, awareness programs and continuous dental education programs among dentists is essential to improve the present scenario.

Questionnaire Part 1: Knowledge and awareness about periodontal health		
	Post-graduates	Under-graduates
1. Which type of brushing is better for good oral health?		
i) Charter	4	18
ii) Bass	72 (90%)	258 (86%)
iii) Roll technique	0	0
iv) Not aware	4	24
2. Is oral hygiene maintenance necessary for good periodontal health?		
i) Yes	80(100%)	300(100%)
ii) No	0	0
iii) May be	0	0
iv) Don't know	0	0
3. Does genetics play a role in periodontal health?		
i)) Yes	76 (95%)	282 (94%)
ii) No	0	11
iii) May be	4	7
iv) Don't know	0	0
4. Does smoking have an effect on periodontal health?		
i)) Yes	80 (100%)	300 (100%)
ii) No	0	0
iii) May be	0	0
iv) Don't know	0	0
5. Does cardiovascular disease have an effect on periodontal health?		
i)) Yes	68(85%)	230(76%)
ii) No	0	0
iii) May be	12	44
iv) Don't know	0	26
6. Does diabetes have an effect on periodontal health?		
i)) Yes	80(100%)	287(95%)
ii) No	0	0
iii) May be	0	0
iv) Don't know	0	13
7. Does obesity have an effect on periodontal health?		
i)) Yes	56(70%)	144 (48%)
ii) No	0	39
iii) May be	16	54
iv) Don't know	8	63
8. Do deranged hormone levels have an effect on periodontal health?		
i)) Yes	80(100%)	278(92%)
ii) No	0	0
iii) May be	0	9
iv) Don't know	0	13

Questionnaire Part 2: Knowledge and awareness about periodontal disease		
	Post-graduates	Under-graduates
1. Is gum bleeding a sign of periodontal disease?		
i) Yes	76(95%)	240(80%)
ii) No	0	0
iii) May be	4	60
iv) Don't know	0	0
2. What is the most important cause of periodontal disease?		
i) Poor oral hygiene	44(55%)	88(29%)
ii) Bacteria	0	0
iii) Genetics	0	0
iv) All the above	36	212
3. Is bone loss caused by plaque?		
i)) Yes	68 (85%)	193 (64%)
ii) No	8	40

iii) May be	4	54
iv) Don't know	0	13
4. Can TFO cause bone loss?		
i)) Yes	80 (100%)	285 (95%)
ii) No	0	0
iii) May be	0	0
iv) Don't know	0	15
5. Is saliva affected by periodontal disease?		
i)) Yes	64(80%)	187(62%)
ii) No	16	0
iii) May be	0	74
iv) Don't know	0	39
6. Is there any relation between pregnancy and periodontal disease?		
i)) Yes	80(100%)	280(93%)
ii) No	0	0
iii) May be	0	0
iv) Don't know	0	20
7. Does osteoporosis affect the progression of periodontal disease?		
i)) Yes	80(100%)	266 (88%)
ii) No	0	0
iii) May be	0	0
iv) Don't know	0	34
8. Is there any relation between stress and periodontal disease?		
i)) Yes	80(100%)	267(89%)
ii) No	0	0
iii) May be	0	0
iv) Don't know	0	33
9. Is abscess, swelling and pain in the gums an indication of periodontal disease?		
i)) Yes	76(95%)	138(46%)
ii) No	4	54
iii) May be	0	95
iv) Don't know	0	13
10. Is tooth mobility a sign of periodontal disease?		
i)) Yes	72(90%)	269(89%)
ii) No	0	18
iii) May be	8	0
iv) Don't know	0	13

Questionnaire Part 3: Personal hygiene practices		
	Post-graduates	Under-graduates
1. Do you brush your teeth?		
i) Yes	80(100%)	300(100%)
ii) No	0	0
2. How often do you brush?		
i) Twice daily	36(45%)	207(69%)
ii) once daily	44	93
iii) Alternate days	0	0
iv) few times a week	0	0
3. Which toothpaste do you use to clean your teeth?		
i) Fluoridated	80 (100%)	251(83%)
ii) No. fluoridated	0	33
iii) Herbal	0	16
iv) Whitening tooth paste	0	0
4. How long does it take to brush your teeth?		
i)) 2 minutes	64 (80%)	200 (66%)
ii) 1 minute	16	78
iii) 30 seconds	0	72
iv) less than 30 seconds	0	0

5. How often do you floss?		
i)) Once daily	20(25%)	69(23%)
ii) Few times a week	36 (45%)	71
iii) Few times a month	8	71
iv) Never	16	89 (30%)
6. How often do you use a chemical mouth rinse?		
i)) Twice daily	0	21(7%)
ii) Once Daily	12	11
iii) Few times a week	44	79
iv) Never	24	189(63%)
7. How often do you visit your Periodontist/Dentist?		
i) Every 6 months	16	104
ii) Once in a year	0	32
iii) When in a need	44	111
iv) Never	20	53
8. How often do you change your toothbrush?		
i) Every month	4	43
ii) Every 3 months	64(80%)	213(71%)
iii) Every 6 months	12	44
iv) Every year	0	0
9. After how long do you professionally clean your teeth? (oral prophylaxis)		
i)) Once every 6 months	28	137(45%)
ii) Once a year	8	54
iii) Once every few years	16	24
iv) Never	28	85
10. How often do you experience bad breath?		
i) Very frequently	0	0
ii) Frequently	0	0
iii) Sometimes	36(45%)	170(57%)
iv) Never	44(55%)	129(43%)

REFERENCE

1. Watt RG, Petersen PE. Periodontal health through public health – The case for oral health promotion. *Periodontol* 2000. 2012;60:147–55.
2. Eke PI, Dye BA, Wei L, Slade GD, Thornton-Evans GO, Borgnakke WS, et al. Update on prevalence of periodontitis in adults in the United States: NHANES 2009 to 2012. *J Periodontol*. 2015;86:611–22.
3. Kumar A, Pandey MK, Singh A, Mitra P, Kumar P. Prevalence and severity of periodontal diseases in type 2 diabetes mellitus of Bareilly region (India). *Int J Med Sci Public Health*. 2013;2:77–83.
4. Kim J, Amar S. Periodontal disease and systemic conditions: A bidirectional relationship. *Odontology*. 2006;94:10–21.
5. K A Umezudike ,S O Iwuala, O B Ozoh, P O Ayanbadejo, O A Fasanmade. Association between periodontal diseases and systemic illnesses: A survey among internal medicine residents in Nigeria. *Saudi Dent J*. 2016;28:24-30.
6. Wilkins EM. Clinical Practice of the Dental Hygienist. 8th ed. Philadelphia: Lippincott Williams & Wilkins; 1999.
7. Ponugubati, Charishma & K, Raja & D, Trinath & Ravi, Ravichandra & Kumar, Sandhya. Periodontal awareness in medical students of Andhra Pradesh, India - A Survey. *IP International Journal of Periodontology and Implantology*. 2020;5:68-73.
8. Taba M Jr, Souza SL, Mariguella VC. Periodontal disease: a genetic perspective. *Braz Oral Res*. 2012;26 Suppl 1:32-8
9. Obeid P, Bercy P. Effects of smoking on periodontal health: a review. *Adv Ther*. 2000;17(5):230-7.
10. Dhadse P, Gattani D, Mishra R. The link between periodontal disease and cardiovascular disease: How far we have come in last two decades? *J Indian Soc Periodontol*. 2010;14(3):148-54.
11. Dahiya P, Kamal R, Gupta R. Obesity, periodontal and general health: Relationship and management. *Indian J Endocrinol Metab*. 2012;16(1):88-93.
12. Khan MAB, Hashim MJ, King JK, Govender RD, Mustafa H, Al Kaabi J. Epidemiology of Type 2 Diabetes - Global Burden of Disease and Forecasted Trends. *J Epidemiol Glob Health*. 2020;10(1):107-111.
13. Preshaw PM, Alba AL, Herrera D, Jepsen S, Konstantinidis A, Makrilakis K, Taylor R. Periodontitis and diabetes: a two-way relationship. *Diabetologia*. 2012;55(1):21-31.
14. Jafri Z, Bhardwaj A, Sawai M, Sultan N. Influence of female sex hormones on periodontium: A case series. *J Nat Sci Biol Med*. 2015;6(Suppl 1):S146-9.
15. Zahid TM, Wang BY, Cohen RE. The effects of thyroid hormone abnormalities on periodontal disease status. *J Int Acad Periodontol*. 201;13(3):80-5.
16. Spector, A.M., Postolache, T.T., Akram, F. et al. Psychological Stress: A Predisposing and Exacerbating Factor in Periodontitis. *Curr Oral Health Rep*. 2020;7:208–15.
17. Könönen E, Gursoy M, Gursoy UK. Periodontitis: A Multifaceted Disease of Tooth-Supporting Tissues. *J Clin Med*. 2019; 8(8):1135.

18. Singh DK, Jalaluddin M, Rajeev R. Trauma from occlusion: The overstrain of the supporting structures of the teeth. *Indian J Dent Sci.* 2017;9:126-32.
19. Wang CJ, McCauley LK. Osteoporosis and Periodontitis. *Curr Osteoporos Rep.* 2016;14(6):284-291.
20. Zi MYH, Longo PL, Bueno-Silva B and Mayer MPA. Mechanisms involved in the association between periodontitis and complications in pregnancy. *Front. Public Health.* 2015;2:290.
21. Singh MS, Tuli AK. A comparative evaluation of oral hygiene practices, oral health status, and behavior between graduate and post-graduate dentists of North India: An epidemiological survey. *J Int Soc Prev Community Dent.* 2013;3:19-24.
22. Ghasemi H, Murtomaa H, Vehkalahti MM, Torabzadeh H. Determinants of oral health behaviour among Iranian dentists. *Int Dent J.* 2007;57:237-42.
23. Tseveenjav B, Vehkalahti M, Murtomaa H. Oral health and its determinants among Mongolian dentists. *Acta Odontol Scand.* 2004;62:1-6.
24. Almas K, Al-Hawish A, Al-Khamis W. Oral hygiene practices, smoking habit, and self-perceived oral malodor among dental students. *J Contemp Dent Pract.* 2003;4:77-90.
25. Gopinath V. Oral hygiene practices and habits among dental professionals in Chennai. *Indian J Dent Res.* 2010;21:195-200.
26. Creeth JE, Gallagher A, Sowinski J, Bowman J, Barrett K, Lowe S, Patel K, Bosma ML. The effect of brushing time and dentifrice on dental plaque removal in vivo. *J Dent Hyg.* 2009;83:111-6.
27. Ashley P. Tooth brushing: Why, when and how? *Dent Update.* 2001;28:36-40.
28. Doshi D, Baldava P, Anup N, Sequeira PS. A comparative evaluation of self-reported oral hygiene practices among medical and engineering university students with access to health-promotive dental care. *J Contemp Dent Pract.* 2007;8:68-75.
29. Vaish S, Ahuja S, Dodwad V. A comparative evaluation of oral hygiene practices and periodontal status among dental and paramedical students: An epidemiological survey. *JIDA.* 2010;4:343-46.
30. El Fadi KA, Ragy N, El Batran M, Kassem N, Nasry SA, Khalifa R, et al. Periodontitis and cardiovascular disease: Floss and reduce a potential risk factor for CVD. *Angiology.* 2011;62:62-7.