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The Impact of Lifestyles on the Periodontal Health of Adults in District Hapur, U.P

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Abstract		Original Research Article

Background: Periodontal disease is a significant problem worldwide. Poor oral hygiene, improper oral health knowledge, bad oral habits, lifestyle, stress, education level, and socioeconomic status are some of important etiological factors. ***Aim:*** (1) to assess the impact of different lifestyle factors on periodontal health of adults. (2) To assess the impact of overall/combined lifestyle variable (calculated by health practice index [HPI]) on periodontal health of adults. ***Methods:*** The present study was conducted in the dental outpatient department of Shree Bankey Bihari Dental College, Masuri, District Hapur, Uttar Pradesh on 300 subjects in the age range of 20 to 60 years. An assessment of periodontal condition of every participant was done by noting a) Health Practice Index (HPI) of every individual ,b) recording the scores of loss of attachment (LOA) of gingiva (if any) by CPI Index (community periodontal index) (FDI/WHO-1982). ***Results:*** The results obtained showed that 155 (51.7%) subjects had HPI Score between 0-3 and had Poor Lifestyle; 91 (30.3%) subjects had HPI Score between 4-5 and had Moderate Lifestyle and 54 (18%) subjects had HPI Score between 6-8 and had Good Lifestyle. A total of 214 (71.3%) subjects had loss of attachment. On multivariate regression analysis it was noticed that Smoking, Sleeping hours per days, Exercise and Overall lifestyle based on combined HPI score was statistically significant for difference in loss of attachment among different groups. ***Conclusion:*** There is a close association between lifestyle & socioeconomic factors with periodontal status. There is a need for patient's involvement in self-care by promoting healthy lifestyles & improving socioeconomic factors

Keywords: Periodontal diseases, life style, health practice index, community periodontal index, loss of attachment.

INTRODUCTION

Periodontal disease continues to be a significant problem worldwide. It is a well-known fact that chronic periodontitis is a multifactorial disorder. The primary etiology is poor oral hygiene which leads to the accumulation of dental plaque, but several other lifestyle factors have important modifying roles in its pathogenesis. Unhealthy lifestyles are found to be associated with a higher prevalence of periodontitis in studies done by Locker *et al.* and Sakki *et al*. [1, 2] Better immunity with higher natural killer cells activity was reported among those with healthy lifestyles [3]. While unhealthy lifestyles were related to elevated or suppressed immunoglobulin levels [4]. The concept of lifestyle highlights the personal characteristics of an individual. , there is a need to investigate various lifestyles as risk factors and actions must be directed toward their rectification. Yet, in considering general health behavior, Breslow's seven habits (sufficient sleep, not smoking, moderate alcohol intake, maintaining proper weight, regular exercise, eating breakfast, and not eating between meals) are commonly used [5].

Oral health behaviors such as frequency of tooth brushing, use of dental floss, and frequency of dental visits are associated with various factors, including knowledge, attitude, lifestyle, stress, education level, and socioeconomic status. Of these six factors, knowledge, attitude, and lifestyle have been related to gender [6].

Psychosocial factors in childhood and adulthood are associated with high levels of periodontal disease in adulthood. High levels of periodontal disease

were predicted by <4 years of education, past and present smoking, high levels of paternal discipline in childhood and low levels of emotional support in adulthood. The influence of childhood factors was not attenuated by adulthood circumstances [7].

Psychosocial stressors are well-known behavioral and emotional responses to common sequel of advancing periodontal disease, which include such negative and dysphonic conditions as pain, bleeding, unpleasant tastes, and odors emanating from the mouth and unsightly appearance of the teeth and surrounding hard and soft supporting structures [8].

Alcohol consumption, like smoking, may be related to periodontal disease independently of oral hygiene status. Alcohol consumption affects various variables like gingival bleeding, clinical attachment loss, alveolar bone loss, and presence of subgingival microorganisms. It is associated with moderately increased severity of periodontal disease [9].

It is found that there is an association between westernization and oral health. Adverse habits, listening to English music and preferring English food has a significant association with dental caries and periodontal diseases. This suggests that young people's identification with western culture may increase their risk for oral diseases [10].

It is important to investigate the individual lifestyle factor that can affect the periodontal status and also study about overall lifestyle that will help to study the combined influences of various risk factors on health [11].

MATERIALS & METHODS

The study was undertaken with an aim to assess the impact of different lifestyle factors & socio-economic status on periodontal health of adults.

The present study was carried out on the subjects of age group 20–60 years attending the dental outpatient department of Shree Bankey Bihari Dental College and Research Centre, Masuri or various dental camps organized at randomly selected locations from the District Hapur, Uttar Pradesh. The study was carried out on 300 subjects randomly irrespective of gender. Informed consent was taken from all the participants on a format before the study. The sample size required to carry out the study was calculated taking confidence level at 95% (Z, standard value of 1.96) and margin of error at 5% (d, standard value of 0.05).A Proforma containing structured questionnaire consisting of four parts was prepared & distributed to the subjects.

The eligibility criteria that had been used for inclusion of the subjects in the study were those who were willing to participate, between the age group of 20–50 years, and able to read the questionnaire. The

subjects those who were not willing to participate, undergoing orthodontic treatment, any medically compromised conditions contraindicating the oral examination such as infective endocarditis and HIV/AIDS were excluded from the study. Individuals with any medical conditions which may influence the periodontal health such as diabetes, pregnancy, anti-inflammatory drugs or tetracycline or Vitamin C supplements from last 6 months, drugs which can cause gingival enlargement, for example, phenytoin (Dilantin), numerous calcium channel blocker agents such as nifedipine, amlodipine, and cyclosporin were also excluded from the study.

Every patient was given the structured questionnaire which consisted of four parts. The first part of the questionnaire included respondents' socio demographic characteristics in terms of age, gender, location, marital status, income/month, education, occupation, and religion.

The second part of the questionnaire was in regards to oral health-related behavior and personal habits such as frequency of dental visits, device of cleaning, frequency of cleaning, method of cleaning, and presence or absence of habits such as tobacco and paan chewing.

The third part of the questionnaire was an "eight-item health practice index (HPI) scale" for the evaluation of the total lifestyle, developed by Morimoto. The eight items on the self-administered questionnaire included information regarding smoking, consuming alcohol, eating breakfast, hours of sleep/night, hours of work/day, physical exercise, nutritional balance, and mental stress. Subjects selected one of 2–6 multiple choices of each item, and the answer was classified as indicating either "good" or "poor" health practices according to Morimoto's criteria. The "good" health practices were given the code of 1, and "poor" health practices were coded 0. Each subject was then assigned a total score between 0 and 8 based on number of good health practices and classified into one of the following three categories as poor lifestyles (score = 0–3), moderate lifestyles (scores = 4, 5), and good lifestyle (scores = 6 or higher)[12].

The fourth part consisted of information on clinical periodontal health status. Loss of attachment (LOA) of periodontal tissues was recorded using the (CPI) community periodontal index (FDI/WHO-1982). LOA with at least 1 site ≥4 mm was considered case-defining criteria for periodontitis [12].

A schedule was prepared for data collection, based on an average time of 10-12 min for clinical examination per individual. The variables were recorded for every part of questionnaire and the whole data was noted on separate master chart. From these

variables, the following clinical parameters were assessed.

- Health Practice Index (HPI) by Morimoto's criteria
- CPI Index (community periodontal index) & of loss of attachment (LOA) of gingiva) by Probing pocket depth (PPD)

Statistical analysis of the data was done using Statistical Package for Social Sciences (SPSS) version 11.5 (SPSS Inc., Chicago, IL, USA). Bivariate analysis was done using Chi-square test for the categorical variables. Adjusted odds ratio (OR) with 95% confidence interval (CI) was calculated using the multivariate logistic regression analysis. The cutoff level for statistical significance was taken at 0.05.

RESULTS

The present study comprised of 300 subjects, consisting of 169 (56.3%) males and 131 (43.7%) females. Following were the observations recorded: Age Distribution: The age of the subjects in the study ranged from 20 years to 60 years with overall mean age of 35.6 ± 3.68 (SD) years. 40 males and 26 female were there in 20-30 age group; 47 males and 31 female were there in 30-40 age group, 38 males and 46 female were there in 40-50 age group and 44 males and 28 female were there in 50-60 age group. Gender Distribution: A total of 169 (56.3) males and 131(43.7) females participated in the study.

Socio-economic characters
A) EDUCATION: 85(28.3%) subjects had never attended school; 31 (10.4%) had completed primary school; 57 (19%) had completed middle school; 67 (22.3%) had completed high school; 54 (18%) had completed diploma and 6(2%) had completed graduation/ post-graduation (Table 1).

B) OCCUPATION: 121 (40.3%) subjects were unemployed; 28 (9.3%) were unskilled, 72 (24%) were skilled/semi-skilled; 50 (16.7%) were clerical or farmer business person; 29 (9.7%) were professionals (Table 1).

C) MONTHLY INCOME: 127 (42.3%) subjects had monthly income below Rs 5000; 103 (34.3%) subjects had monthly income between Rs 5000 and Rs 20,000; remaining 70 (23.4%) had monthly income above Rs 20,000. (Table 1)

Table-1: Level of Education, Occupation & monthly Income Distribution

S. No.	Socio-economic Variables	n	(%) n
A.	EDUCATION		
1.	School never attended	85	28.3
2.	Primary School	31	10.4
3.	Middle School	57	19
4.	High School	67	22.3
5.	Diploma	54	18
6.	Graduate/ Post graduate	06	02
	Total	300	100
B.	OCCUPATION		
1.	Unemployed	121	40.3
2.	Unskilled	28	09.3
3.	Skilled/Semi-Skilled	72	24
4.	Clerical/Farmer Business	50	16.7
5.	Professional	29	09.7
	Total	300	100
C.	MONTHLY INCOME (Rs.)		
1.	<5000	127	42.3
2.	5001-20,000	103	34.3
3.	20,001-50,000	70	23.4
	Total	300	100

n= no of subjects

Health practice index (HPI)
- Smoking: 47 (15.7%) had present habit of smoking, 71 (23.7%) had past history of smoking and 182 (60.6%) had never smoked. (Table 2,3)
- Alcohol Intake: 96 (32%) consumed alcohol every day, 11 (3.7%) about 3-5 per week, 16 (5.3%) about 1-2 per week, 31(10.3%) about 1-3 per month, 22 (7.3%) about 1-10 per year and 124 (41.3%) had never consumed alcohol. (Table 2,3)

- Breakfast Intake: 199 (66.3%) almost every day had breakfast, 14 (4.7%) had breakfast sometimes and 87 (29%) had no breakfast. (Table 2,3)
- Sleep per day: 59 (19.7%) had sleep of more than 9 hours, 62 (20.7%) had sleep of 8 hours; 47 (15.7%) had sleep of 7 hours; 58 (19.3%) had sleep of 6 hours; 74 (24.6%) had sleep of less than 5 hours. (Table2,3)

- Working hours per day: 67 (22.3%) had more than 11 working hours per day; 98 (32.7%) had 10 working hours per day; 47 (15.7%) had 9 working hours per day; 29 (9.7%) had 8 working hours per day and 59 (19.6%) had less than 7 working hours per day. (Table 3,4)
- Exercise Schedule: 56 (18.7%) almost every day, 21 (7%) about 2-4 times per week, 11 (3.7%) About once per week, 49 (16.3%) about once per month and 163 (54.3%) subjects had not exercised at all. (Table2,3)
- Type of Diet: 242 (80.7%) subjects ate balanced diet; 12 (4%) subjects ate diet with little attention and 46 (15.3%) subjects did not eat a balanced diet. (Table2,3)
- Mental Stress: 181 (60.3%) subjects felt excessive stress; 72 (24%) subjects felt mild stress and 47 (15.7%) subjects felt slight stress. (Table2,3)

Table-2: Health Practice Index (HPI) Variable

Variable	n	(%) n
1. SMOKING		
Present	47	15.7
Past	71	23.7
Never[*]	182	60.6
2. ALCOHOL INTAKE		
Almost everyday	96	32
About 3-5 per week[*]	11	3.7
About 1-2 per week[*]	16	5.3
About 1-3 per month[*]	31	10.3
About 1-10 per year[*]	22	7.3
None[*]	124	41.3
3. BREAKFAST INTAKE		
Almost every day[*]	199	66.3
Sometimes	14	4.7
Not	87	29
4. SLEEP		
$\geq$9 hours	59	19.7
8 hours[*]	62	20.7
7 hours[*]	47	15.7
6 hours	58	19.3
$\leq$5 hours	74	24.6
5. WORKING HOURS/DAY		
$\geq$ 11 hours	67	22.3
10 hours	98	32.7
9 hours[*]	47	15.7
8 hours[*]	29	9.7
$\leq$ 7 hours[*]	59	19.6
6. EXERCISE SCHEDULE		
Almost every day[*]	56	18.7
About 2-4 per week[*]	21	7
About 1 per week[*]	11	3.7
About 1 per month	49	16.3
Not	163	54.3
7. TYPE OF DIET		
Eat a balanced diet[*]	242	80.7
Eat with little attention	12	4
Do not eat a balanced diet	46	15.3
8. MENTAL STRESS		
Feel excessive stress	181	60.3
Feel mild stress[*]	72	24
Feel slight stress[*]	47	15.7

*Good =1, Poor =0,   n= no of subjects

Table-3: Health Practice Index (HPI) – Cumulative

Variable	n	(%)n
1. SMOKING		
Good	182	60.7
Poor	118	39.3
2. ALCOHOL INTAKE		
Good	204	68
Poor	96	32
3. BREAKFAST INTAKE		
Good	199	66.3
Poor	101	33.7
4. SLEEP		
Good	109	36.3
Poor	191	63.7
5. WORKING HOURS/DAY		
Good	135	45
Poor	165	55
6. EXERCISE SCHEDULE		
Good	88	29.3
Poor	212	70.7
7. TYPE OF DIET		
Good	242	80.7
Poor	58	19.3
8. MENTAL STRESS		
Good	119	39.7
Poor	181	60.3

n= no of subjects

Loss of attachment (LOA)

A total of 214 (71.3%) subjects had loss of attachment.

Comparison of various components of hpi with loa

Smoking: 46 (21.4%) subjects with LOA belonged to Good HPI Score whereas 168 (78.6%) subjects with LOA belonged to Poor HPI Score. The difference was statistically significant (p=0.03) and OR was 1.65 (Table 4).

Alcohol Intake: 102 (47.7%) subjects with LOA belonged to Good HPI Score whereas 112 (52.3%) subjects with LOA belonged to Poor HPI Score. The difference was statistically non- significant (p=0.17) and OR was 0.83. (Table 4) Breakfast Intake: 87 (40.7%) subjects with LOA belonged to Good HPI Score whereas 127 (59.3%) subjects with LOA belonged to Poor HPI Score. The difference was statistically non- significant (p=0.06) and OR was 1.11. (Table 4) Sleep: 59 (27.6%) subjects with LOA belonged to Good HPI Score whereas 155 (72.4%) subjects with LOA belonged to Poor HPI Score. The difference was statistically significant (p=0.008) and OR was 1.38 (Table 4).

Working Hours: 116 (54.2%) subjects with LOA belonged to Good HPI Score whereas 98 (45.8%) subjects with LOA belonged to Poor HPI Score. The difference was statistically non- significant (p=0.74) and OR was 1.14. (Table 4) Exercise Schedule: 78 (36.4%) subjects with LOA belonged to Good HPI Score whereas 136 (63.6%) subjects with LOA belonged to Poor HPI Score. The difference was statistically highly significant (p=0.001) and OR was 2.05. (Table 4) Type of Diet: 96 (44.9%) subjects with LOA belonged to Good HPI Score whereas 118 (55.1%) subjects with LOA belonged to Poor HPI Score. The difference was statistically non- significant (p=0.37) and OR was 1.24. (Table 4) Mental Stress: 41 (19.1%) subjects with LOA belonged to Good HPI Score whereas 173 (80.9%) subjects with LOA belonged to Poor HP. The difference was statistically non- significant (p=0.18) and OR was 1.87. (Table 4)

Table-4: Independent Association of various components of Lifestyle with LOA –Multivariate Regression Analysis

Variable	(LOA) n & (%)n	Adjusted OR (95% CI)	p value
1. SMOKING			
Good	46 (21.4)	1	
Poor	168 (78.6)	1.65 (0.90-2.34)	0.03[*]
2. ALCOHOL INTAKE			
Good	102 (47.7)	1	
Poor	112 (52.3)	0.83 (0.10-1.34)	0.17[#]
3. BREAKFAST INTAKE			
Good	87 (40.7)	1	
Poor	127 (59.3)	1.11 (0.67-2.21)	0.06[#]
4. SLEEP			
Good	59 (27.6)	1	
Poor	155 (72.4)	1.38 (0.69-2.88)	0.008[*]
5. WORKING HOURS/DAY			
Good	116 (54.2)	1	
Poor	98 (45.8)	1.14 (0.73-2.68)	0.74[#]
6. EXERCISE SCHEDULE			
Good	78 (36.4)	1	
Poor	136 (63.6)	2.05 (1.23-3.76)	0.001[**]
7. TYPE OF DIET			
Good	96 (44.9)	1	
Poor	118 (55.1)	1.24 (0.89-2.98)	0.37[#]
8. MENTAL STRESS			
Good	41 (19.1)	1	
Poor	173 (80.9)	1.87 (0.62-2.59)	0.18[#]

OR = Odds Ratio, Significant *, Highly Significant ,** Non-Significant #, n= no of subjects

Overall/combined lifestyle variables based on HPI scores & LOA

155 (51.7%) subjects had HPI Score between 0-3 and had Poor Lifestyle; 91 (30.3%) subjects had HPI Score between 4-5 and had Moderate Lifestyle and 54 (18%) subjects had HPI Score between 6-8 and had Good Lifestyle. 144 (67.3%) subjects with LOA belonged to Poor Lifestyle based on HPI Score; 52 (24.3%) subjects with LOA belonged to Moderate Lifestyle based on HPI Score and 18 (8.4%) subjects with LOA belonged to Good Lifestyle based on HPI Score. The difference between Poor Lifestyle and Good Lifestyle was statistically highly significant (p=0.001) with OR of 2.82. Whereas the difference between Moderate Lifestyle and Good Lifestyle was statistically not-significant (p=0.32) with OR of 1.16(Table 5)

Comparison of socio-economic characters with LOA

Education: 46 (21.4%) subjects with LOA belonged to illiterate group whereas 168 (78.6%) subjects with LOA belonged to educated group. The difference in the occurrence of LOA among educated and uneducated groups was statistically non-significant (p=0.28) and OR was 1.77. (Table5)

Occupation: 102 (47.7%) subjects with LOA belonged to unskilled and unemployed group whereas 112 (52.3%) subjects with LOA belonged to skilled and others group. The difference was statistically non-significant (p=0.39) and OR was 1.65. (Table 5)

Monthly Income: 87 (40.7%) subjects with LOA belonged to less than Rs. 5000 monthly income group whereas 127 (59.3%) subjects with LOA belonged to more than Rs. 5000 monthly income group. The difference was statistically non- significant (p=0.75) and OR was 1.11. (Table 5)

Table-5: Independent Association of Socio-economic characters & Lifestyle with LOA –Multivariate Regression Analysis

Variable	(LOA) n &(%) n	Adjusted OR (95% CI)	p value
EDUCATION			
School never attended	46 (21.4)	1.77 (0.80-2.44)	0.28#
Others	168 (78.6)	1	
OCCUPATION			
Unskilled	102 (47.7)	1.65 (0.72-2.94)	0.39#
Others	112 (52.3)	1	
INCOME/MONTH			
<5000 Rupees	87 (40.7)	1.11 (0.67-2.21)	0.75#
Others	127 (59.3)	1	
LIFESTYLES			
Poor lifestyle	144 (67.3)	2.82 (1.64-3.98)	0.001*
Moderate lifestyle	52 (24.3)	1.16 (0.84-2.29)	0.32#
Good lifestyle	18 (8.4)	1	

OR = Odd Ratio, Significant *, highly Significant, ** Non-Significant #, n= no of subjects

DISCUSSION

The term "lifestyle" is taken to mean a general way of living based on the interplay between living conditions in the wide sense and individual patterns of behavior as determined by sociocultural factors and personal characteristics. The way in which an individual lives may produce behavioral patterns that are either beneficial or detrimental to health. If health is to be improved, actions must be directed at both the individual and environmental factors affecting lifestyle [13].

The present study was done with the objective of assessing the impact of various lifestyle factors and overall lifestyles on the periodontal health of the adults. It included a larger set of variables such as demographics of study subjects, their oral health-related behaviors, personal habits, habits included in HPI, and overall lifestyles (calculated by HPI). The results of the multivariate regression analysis found the following variables, i.e., age, smoking, number of sleeping hours per night, physical activity, and overall poor lifestyles to be independently associated with periodontitis (measured in terms of LOA).

Demographics and periodontitis

Age was found to be significantly associated with periodontitis in the present study as most of the cases of loss of attachment belonged to the elderly age group which was in accordance with a multitude of studies, for example, Doifode *et al.* [14] , Al Sinaidi [15] Albandar *et al.* [16]. However, it was believed it was believed that severe periodontal disease in the elderly could be due to cumulative destruction over a lifetime, rather than the influence of age. The effect of age on the progression of periodontitis could therefore be considered negligible when good oral hygiene is maintained. This belief is further supported by Abdell at if & Burt [17] who reported that more than 95% of the cases examined with good oral hygiene in all age groups did not have periodontitis.

Personal habits and periodontitis

Smokers were 1.85 times more prone to periodontitis than nonsmokers in the present study. This finding was in uniformity with a majority of studies which considered smoking as a contributing factor to poor periodontal health and a very important risk factor for periodontal diseases. Smoking suppresses the host-defense system and in turn, promotes periodontal disease progression. The difference among occurrence of loss of attachment between smokers and non-smokers was statistically significant in our study. On the contrary, Croucher *et al*. [18] reported that tobacco smoking was not a significant factor for periodontitis.

Alcohol consumption is considered an independent modifiable risk factor for periodontitis. The relation of alcohol consumption with periodontitis was unclear in the multivariate analysis of the present study due to the presence of wide Confidence Interval between the two. As 96 participants reported alcohol consumption every day, it was interesting to find that only 47 had LOA of the periodontal tissues. This indicates that daily alcohol consumption may not be an important risk factor for periodontitis. The difference among occurrence of loss of attachment between alcoholics and non-alcoholics was statistically non-significant in our study.

Lack of sleep was identified as another significant lifestyle factor in the present study that may play a role in the progression of periodontal disease. The participants who sleep for 7–8 h/day exhibited less periodontal disease (LOA) than those who sleep for 6 h or lesser a day. This is in accordance with the study conducted by Kibayashi *et al*. [19] however, studies that have observed hours of sleep as an independent factor affecting periodontal health are scarce. From this study, we can speculate that shortage of sleep can impair the body's immune response which may lead to the progression of periodontal disease. The other possible explanation could be that lack of sleep can act as a proxy indicator for stress or over worked conditions.

Lack of physical activity had also demonstrated a significant impact on periodontal disease. Participants who did not perform any form of exercise were 2.05 times more likely to have LOA than those who did. The difference in loss of attachment between exercising and non-exercising subjects was statistically highly significant. This finding corresponds with the reports presented by Al-Zahrani *et al.* [20] Similarly, Merchant *et al.* [21] reported that the benefits of a physically active lifestyle may extend to periodontal health. In contrast, there are studies that have affirmed that physical activity was not associated with periodontitis.

The influence of stress and number of hours of work per day were reduced in the multivariate analysis to an extent that it was not significantly associated with the periodontitis in the present study. This finding differs from studies done by Linden *et al.* [22] which revealed a significant relationship between periodontal health status and work-related mental demand. Similarly, studies done by Wimmer *et al.* [23] and Pistorius *et al.* [24] reported that mental stress may be a contributing factor in periodontal disease. Similar to the study done by Aleksejuniené *et al.* [25] a link between stress and periodontal health was not found in the present study. Lack of association in the current study could be due to social desirability bias which can arise as a result of self-assessment of the levels of stress.

In the present study, in addition to the habits included in the HPI, tobacco chewing, and paan chewing behaviors were also evaluated as these habits are integral to the culture of the study area. However, the association of chewing tobacco was not found significant with the LOA of periodontal tissues of the study subjects, which was in agreement with Sinusas *et al.* [26] Nevertheless; we believe that smokeless tobacco may be an important risk factor for periodontal disease. Use of smokeless tobacco is known to produce a painless loss of gingival tissues and alveolar bone destruction in the area of chronic tobacco contact as reported by Robertson *et al.* [27]. This is a result of collagen breakdown due to increased release of collagenase.

Overall/combined lifestyle variable

The combined lifestyle variable used in the study represented the aspects of overall lifestyle related to health. The variable was used here to obtain a more comprehensive view than a single characteristic of behavior using the HPI developed by Morimoto [12].

The prevalence of LOA was almost twice among participants with poor lifestyles than that found in participants with good lifestyles. This was congruent with the findings reported by Sakki *et al.* [28] Kibayashi *et al.* [19] and Gundala & Chava [13] which also stated that lifestyle had an independent association with periodontal health. The prevalence of periodontitis among those with a healthy lifestyle was significantly lower as compared to those with an unhealthy lifestyle.

CONCLUSION

The concept of lifestyle enhances an overall view of health. The association of lifestyle with periodontitis supports the concept that behavior should be taken into consideration for the prevention of chronic diseases. This however can only be made possible by the patient's involvement in self-care by promoting healthy lifestyles. Negating orally abusive substance addiction, having breakfast every day, eating a balanced diet, and reducing stress lead to an overall good lifestyle. These factors along with sleeping a minimum of 7 - 8 hours per night and working for 8-9 hours and ample daily exercise may help patients improve or protect their oral health for years to come.

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