



## ASSOCIATION BETWEEN EDUCATION LEVEL AND LIFESTYLE ON PERIODONTAL HEALTH STATUS IN ADULTS(35-44 YEARS)- A CROSS SECTIONAL STUDY

### Dental Science

<b>Debasis Mitra</b>	Third Year MDS PGT, Dept Of Periodontics, GNIDSR, Kolkata, WB.
<b>Santanu Sen Roy</b>	Reader, Dept Of Public Health Dentistry, GNIDSR, Kolkata, WB.
<b>Aakansha Malawat*</b>	Third Year MDS PGT, Dept Of Periodontics, GNIDSR, Kolkata, WB. *Corresponding Author
<b>Dibyendu Kr. Kundu</b>	Reader, Dept Of Periodontics, GNIDSR, Kolkata, WB.
<b>Abhijit Chakraborty</b>	Professor & HOD, Dept Of Periodontics, GNIDSR, Kolkata, WB.
<b>Debarshi Jana</b>	Young Scientist, Institute of Post-Graduate Medical Education and Research, A.J.C. Bose Road, Kolkata-700020, West Bengal, India.

### ABSTRACT

**INTRODUCTION:** Periodontal disease is a chronic inflammatory disease that affects the majority of the world's population. Currently, more emphasis has been directed towards the combined influence of education level, lifestyle instead of regular risk factors in dealing with chronic illnesses. The present paper is to assess the periodontal health status, education level and lifestyle in outpatient department of Guru Nanak Institute of Dental Sciences and Research (GNIDSR), Sodepur, Kolkata, West Bengal.

**OBJECTIVE:** The objective of the study was to evaluate patient's education level & life style with periodontal disease.

**METHODOLOGY:** This cross-sectional study was conducted on 245 subjects of 35-44 years age group over two months period. Subjects were interviewed by the questionnaire and Modified Community Periodontal Index was recorded.

**RESULT:** The statistical analysis shows significant decrease in periodontal health status when education level increased. Also the prevalence of periodontitis with a healthy lifestyle is significantly lower when compared with an unhealthy lifestyle.

**CONCLUSION:** There is a strong association of lifestyle and education level with periodontal health.

### KEYWORDS

Periodontal disease, Life style, Education Level

#### INTRODUCTION

Periodontal disease is a major cause of tooth loss in adults.<sup>1</sup> Periodontitis or inflammation of periodontium results from the extension of the inflammatory process initiated in the gingiva to the supporting periodontal tissues, leading to bone damage and eventually loss of teeth. In India, periodontal disease has a high prevalence rate.<sup>2</sup> There are also huge disparities between the education level and lifestyle status of the people living in the country.<sup>3</sup> In developing countries, where illiteracy rates are quite high, education status plays determining role in the health of a particular individual. The concept of improved lifestyle is gaining much importance for maintenance of periodontal health. The present study is carried out in order to find out the association between education level and lifestyle on periodontal health status in adults in the out-patient dept. of Guru Nanak Institute of Dental Sciences and research, Kolkata, West Bengal.

#### MATERIAL & METHODS

The present cross-sectional study was carried out in the outpatient department of Periodontology, GNIDSR. Ethical clearance was obtained from the institutional review board of GNIDSR. The study was conducted in between the month of January- March 2019. Total 245 subjects participated between the age group of 35-44 years. According to WHO, this age group is the standard age group for surveillance for oral health conditions in adults.<sup>4</sup> Informed consent was obtained from each individual.

#### INCLUSION CRITERIA

- Patient aged 35-44 years
- Presence of more than 20 teeth
- Those who gave consent were included in the study

#### EXCLUSION CRITERIA

- Patient with history of systemic disease.
- Individual having <20 teeth and who denied giving the consent was excluded from the study.

The WHO oral health questionnaire for adults was interviewed by each participant asking information of their lifestyle status and education level.

Community periodontal index modified under which bleeding on probing, periodontal pocket depth and loss of attachment was recorded by a single trained, calibrated examiner with the use of CPITN probe, mouth mirror and under good illumination light.

#### Lifestyle:

##### Behaviour

- Tobacco related habits
- Dietary habits (mainly sweets/ candy)
- Alcohol consumption

##### Attitude

- Brushing habits
- Frequency of dental check-up.

#### Education level

The level of education was assessed based on the no formal schooling, primary education, secondary education, graduation and above

#### Questionnaire:

Name:

Age & sex:

Address & Phone No.

How often do you use any of the following types of tobacco?  
(Read each item)

	Every day	Several times a week	Once a week	Several times a month	Seldom	Never
	6	5	4	3	2	1
Cigarettes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cigars.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
A pipe.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chewing tobacco.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Use snuff.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please specify

How often do you eat or drink any of the following foods, even in small quantities?  
(Read each item)

	Several times a day	Every day	Several times a week	Once a week	Several times a month	Seldom	Never
	6	5	4	3	2	1	
Fresh fruit.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biscuits, cakes, cream cakes.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweet pies, buns.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Jam or honey.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chewing gum containing sugar.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sweets/candy.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

During the past 30 days, on the days you drank alcohol, how many drinks did you usually drink per day?

- Less than 1 drink .....  0
- 1 drink .....  1
- 2 drinks .....  2
- 3 drinks .....  3
- 4 drinks .....  4
- 5 or more drinks .....  5
- Did not drink alcohol during the past 30 days .....  9

How often do you clean your teeth?

- Never .....  1
- Once a month .....  2
- 2-3 times a month .....  3
- Once a week .....  4
- 2-6 times a week .....  5
- Once a day .....  6
- Twice or more a day .....  7

Do you use any of the following to clean your teeth?

(Read each item)

	Yes	No
1. Toothbrush.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Wooden toothpicks.....	<input type="checkbox"/>	<input type="checkbox"/>
Plastic toothpicks?.....	<input type="checkbox"/>	<input type="checkbox"/>
Thread (dental floss).....	<input type="checkbox"/>	<input type="checkbox"/>
Charcoal.....	<input type="checkbox"/>	<input type="checkbox"/>
Chewstick/miswak.....	<input type="checkbox"/>	<input type="checkbox"/>
Other.....	<input type="checkbox"/>	<input type="checkbox"/>
Please specify.....	<input type="checkbox"/>	<input type="checkbox"/>

a) Do you use toothpaste to clean your teeth .....  1  2

b) Do you use a toothpaste that contains fluoride? ....  1  2

How often do you clean your teeth?

- Never .....  1
- Once a month .....  2
- 2-3 times a month .....  3
- Once a week.....  4
- 2-6 times a week.....  5
- Once a day.....  6
- Twice or more a day.....  7

Do you use any of the following to clean your teeth?

(Read each item)

	Yes	No
1. Toothbrush.....	<input type="checkbox"/> 1	<input type="checkbox"/> 2
Wooden toothpicks.....	<input type="checkbox"/>	<input type="checkbox"/>
Plastic toothpicks?.....	<input type="checkbox"/>	<input type="checkbox"/>
Thread (dental floss).....	<input type="checkbox"/>	<input type="checkbox"/>
Charcoal.....	<input type="checkbox"/>	<input type="checkbox"/>
Chewstick/miswak.....	<input type="checkbox"/>	<input type="checkbox"/>
Other.....	<input type="checkbox"/>	<input type="checkbox"/>
Please specify.....	<input type="checkbox"/>	<input type="checkbox"/>

a) Do you use toothpaste to clean your teeth .....  1  2

b) Do you use a toothpaste that contains fluoride? ....  1  2

**Statistical Analysis:**

For statistical analysis data were entered into a Microsoft excel spreadsheet and then analyzed by SPSS (version 24.0; SPSS Inc., Chicago, IL, USA) and GraphPad Prism version 5. A chi-squared test ( $\chi^2$  test) was any statistical hypothesis test wherein the sampling distribution of the test statistic is a chi-squared distribution when the null hypothesis is true. Without other qualification, 'chi-squared test' often is used as short for Pearson's chi-squared test. Unpaired

proportions were compared by Chi-square test or Fischer's exact test, as appropriate.

p-value  $\leq 0.05$  was considered for statistically significant.

**RESULTS**

We found that association of education vs. bleeding was statistically significant (p=0.0174). It was found that association between No of Brushing time vs. bleeding was statistically significant (p<0.0001). We found that association between Material of Brushing vs. bleeding was not statistically significant (p=0.6607). It was found that association between Material of Brushing vs. bleeding was not statistically significant (p=0.6607). We found that association of last saw dentist vs. bleeding was not statistically significant (p=0.8738). It was found that association between reason for visit vs. bleeding was not statistically significant (p=0.1148).

We found that association between sweet vs. bleeding was not statistically significant (p=0.6631). It was found that in bleeding, 84(47.7%) patients had no tobacco and 92(52.3%) patients had tobacco. Association between tobacco vs. bleeding was statistically significant (p<0.0001). We found that in bleeding, 118(67.0%) patients had no drinking and 58(33.0%) patients had drinking. Association between drinking vs. bleeding was not statistically significant (p=0.5486). It was found that association between education vs. pocket was statistically significant (p=0.0066). We found that association between no. of brushing time vs. pocket was statistically significant (p<0.0001). It was found that association between material of brushing vs. pocket was not statistically significant (p=0.6289). We found that in pocket, 3(2.3%) patients had no tooth paste and 129(97.7%) patients had tooth paste. Association between tooth paste vs. pocket was not statistically significant (p=0.1068). It was found that association between last saw dentist vs. pocket was not statistically significant (p=0.8211). We found that association between reason for visit vs. pocket was not statistically significant (p=0.6425). It was found that association between sweet vs. pocket was not statistically significant (p=0.4122). We found that in pocket, 60(45.5%) patients had no tobacco and 72(54.5%) patients had tobacco. Association between tobacco vs. pocket was statistically significant (p<0.0001). It was found that in pocket, 90(68.2%) patients had no drinking and 42(31.8%) patients had drinking. Association between drinking vs. pocket was not statistically significant (p=0.9946). We found that association between education vs. LOA was statistically significant (p=0.0002). It was found that association between no. of brushing time vs. LOA was statistically significant (p<0.0001). We found that association between material of brushing vs. LOA was not statistically significant (p=0.3458). It was found that in LOA, 3(2.2%) patients had no tooth paste and 132(97.8%) patients had tooth paste. Association between tooth paste vs. LOA was not statistically significant (p=0.1156). We found that association between last saw dentist vs. LOA was not statistically significant (p=0.7334). It was found that association between reason for visit vs. LOA was not statistically significant (p=0.5227). We found that association between sweet vs. LOA was not statistically significant (p=0.2460). It was found that in LOA, 60(44.4%) patients had no tobacco and 75(55.6%) patients had tobacco. Association between tobacco vs. LOA was statistically significant (p<0.0001). We found that in LOA, 92(68.1%) patients had no drinking and 43(31.9%) patients had drinking. Association between drinking vs. LOA was not statistically significant (p=0.9955).

**DISCUSSION**

The knowledge of periodontal disease aetiology is of fundamental importance for the prevention. Accordingly, we should be aware of patient's education level and lifestyle clearly to instruct them. According to Gencalvas et al.,<sup>5</sup> most patients considered that tooth brushing is a preventive method of dental caries but periodontal disease prevention is barely known. The term "lifestyle" means a general way of living based on conditions and behaviour of an individual. In the past, several authors stressed upon the concept of healthy lifestyle being related to health.<sup>6</sup> Education level was subdivided into 7 levels in our questionnaire. Our result showed there is a positive association between higher education level and better periodontal health status. This is in accordance with Richard et al.,<sup>7</sup> who identified education level is a strong indicator of periodontal status. Lower educational attainment closely co-related with low degree of periodontal health awareness.<sup>8</sup>

People with unhealthy lifestyle have a poor periodontal status because

of their detrimental effect of tobacco. The association of tobacco with periodontal health was linked not only to poor oral hygiene but also to poor general lifestyle.<sup>9</sup>This is in accordance with Rajala<sup>10</sup> who had shown a positive association between dental health behaviour and lifestyle variables.

In our study there is no co-relation found between dietary habits, alcohol consumption and materials of tooth brushing, frequency of dental check-ups. Dental visiting is still not considered a preventive dental behaviour. <sup>9</sup>The present study indicates that there is a strong association between oral hygiene practices and periodontal health status.

**CONCLUSION**

To conclude, it may be stated that this cross-sectional study of a representative sample of the population of Kolkata shows that periodontal health status is related to a series of factors as education level, behaviour, attitude of an individual. In this context, social projects and/or programs are important to evaluate the patient's knowledge and establish educative parameters, aiming to reduce the number of periodontal diseases over the years.

**Limitations**

A few shortcomings of the study were self-reporting of all variables. The sample of 245 individuals is a selective sample of those visiting the Dept. of Periodontics and may not truly represent the trends in the community on the whole.

**Table: Association of education with bleeding, pocket and LOA**

Education	BLEEDING			POCKET			LOA		
	NO	YES	TOTAL	NO	YES	TOTAL	NO	YES	TOTAL
1	2	19	21	5	16	21	4	17	21
Row %	9.5	90.5	100.0	23.8	76.2	100.0	19.0	81.0	100.0
Col %	2.9	10.8	8.6	4.4	12.1	8.6	3.6	12.6	8.6
2	1	11	12	1	11	12	1	11	12
Row %	8.3	91.7	100.0	8.3	91.7	100.0	8.3	91.7	100.0
Col %	1.4	6.3	4.9	0.9	8.3	4.9	0.9	8.1	4.9
3	11	49	60	25	35	60	20	40	60
Row %	18.3	81.7	100.0	41.7	58.3	100.0	33.3	66.7	100.0
Col %	15.9	27.8	24.5	22.1	26.5	24.5	18.2	29.6	24.5
4	17	30	47	23	24	47	23	24	47
Row %	36.2	63.8	100.0	48.9	51.1	100.0	48.9	51.1	100.0
Col %	24.6	17.0	19.2	20.4	18.2	19.2	20.9	17.8	19.2
5	12	23	35	19	16	35	19	16	35
Row %	34.3	65.7	100.0	54.3	45.7	100.0	54.3	45.7	100.0
Col %	17.4	13.1	14.3	16.8	12.1	14.3	17.3	11.9	14.3
6	26	44	70	40	30	70	43	27	70
Row %	37.1	62.9	100.0	57.1	42.9	100.0	61.4	38.6	100.0
Col %	37.7	25.0	28.6	35.4	22.7	28.6	39.1	20.0	28.6
TOTAL	69	176	245	113	132	245	110	135	245
Row %	28.2	71.8	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Chi-square value	13.7319			16.0922			24.6892		
p-value	0.0174			0.0066			0.0002		

**Table: Association of tobacco with bleeding, pocket and LOA**

Tobacco	BLEEDING			POCKET			LOA		
	NO	YES	TOTAL	NO	YES	TOTAL	NO	YES	TOTAL
N	58	84	142	82	60	142	82	60	142
Row %	40.8	59.2	100.0	57.7	42.3	100.0	57.7	42.3	100.0
Col %	84.1	47.7	58.0	72.6	45.5	58.0	74.5	44.4	58.0
Y	11	92	103	31	72	103	28	75	103
Row %	10.7	89.3	100.0	30.1	69.9	100.0	27.2	72.8	100.0
Col %	15.9	52.3	42.0	27.4	54.5	42.0	25.5	55.6	42.0
TOTAL	69	176	245	113	132	245	110	135	245
Row %	28.2	71.8	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Chi-square value	26.8503			18.3658			22.5387		
p-value	<0.0001			<0.0001			<0.0001		

**Table: Association of sweet with bleeding, pocket and LOA**

Sweet	BLEEDING			POCKET			LOA		
	NO	YES	TOTAL	NO	YES	TOTAL	NO	YES	TOTAL
1	32	99	131	56	75	131	54	77	131
Row %	24.4	75.6	100.0	42.7	57.3	100.0	41.2	58.8	100.0
Col %	46.4	56.3	53.5	49.6	56.8	53.5	49.1	57.0	53.5
2	6	13	19	6	13	19	8	11	19
Row %	31.6	68.4	100.0	31.6	68.4	100.0	42.1	57.9	100.0
Col %	8.7	7.4	7.8	5.3	9.8	7.8	7.3	8.1	7.8
3	6	15	21	12	9	21	8	13	21
Row %	28.6	71.4	100.0	57.1	42.9	100.0	38.1	61.9	100.0
Col %	8.7	8.5	8.6	10.6	6.8	8.6	7.3	9.6	8.6
4	5	15	20	10	10	20	10	10	20
Row %	25.0	75.0	100.0	50.0	50.0	100.0	50.0	50.0	100.0
Col %	7.2	8.5	8.2	8.8	7.6	8.2	9.1	7.4	8.2
5	18	31	49	27	22	49	29	20	49
Row %	36.7	63.3	100.0	55.1	44.9	100.0	59.2	40.8	100.0
Col %	26.1	17.6	20.0	23.9	16.7	20.0	26.4	14.8	20.0
6	2	3	5	2	3	5	1	4	5
Row %	40.0	60.0	100.0	40.0	60.0	100.0	20.0	80.0	100.0
Col %	2.9	1.7	2.0	1.8	2.3	2.0	0.9	3.0	2.0

<b>TOTAL</b>	69	176	245	113	132	245	110	135	245
Row %	28.2	71.8	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Chi-square value</b>	3.2395			5.0302			6.6739		
<b>p-value</b>	0.6631			0.4122			0.2460		

**Table: Association of drinking with bleeding, pocket and LOA**

Drinking	BLEEDING			POCKET			LOA		
	NO	YES	TOTAL	NO	YES	TOTAL	0	1	TOTAL
<b>N</b>	49	118	167	77	90	167	75	92	167
Row %	29.3	70.7	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	71.0	67.0	68.2	68.1	68.2	68.2	68.2	68.1	68.2
<b>Y</b>	20	58	78	36	42	78	35	43	78
Row %	25.6	74.4	100.0	46.2	53.8	100.0	44.9	55.1	100.0
Col %	29.0	33.0	31.8	31.9	31.8	31.8	31.8	31.9	31.8
<b>TOTAL</b>	69	176	245	113	132	245	110	135	245
Row %	28.2	71.8	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Chi-square value</b>	0.3598			0.0000			0.0000		
<b>p-value</b>	0.5486			0.9946			0.9955		

**Table: Association of no of brushing time with bleeding, pocket and LOA**

No of Brushing time	BLEEDING			POCKET			LOA		
	NO	YES	TOTAL	NO	YES	TOTAL	NO	YES	TOTAL
<b>1</b>	0	55	55	1	54	55	0	55	55
Row %	0.0	100.0	100.0	1.8	98.2	100.0	0.0	100.0	100.0
Col %	0.0	31.3	22.4	0.9	40.9	22.4	0.0	40.7	22.4
<b>2</b>	0	29	29	0	29	29	0	29	29
Row %	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0
Col %	0.0	16.5	11.8	0.0	22.0	11.8	0.0	21.5	11.8
<b>5</b>	1	0	1	1	0	1	1	0	1
Row %	100.0	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0
Col %	1.4	0.0	0.4	0.9	0.0	0.4	0.9	0.0	0.4
<b>6</b>	34	62	96	65	31	96	61	35	96
Row %	35.4	64.6	100.0	67.7	32.3	100.0	63.5	36.5	100.0
Col %	49.3	35.2	39.2	57.5	23.5	39.2	55.5	25.9	39.2
<b>7</b>	34	30	64	46	18	64	48	16	64
Row %	53.1	46.9	100.0	71.9	28.1	100.0	75.0	25.0	100.0
Col %	49.3	17.0	26.1	40.7	13.6	26.1	43.6	11.9	26.1
<b>TOTAL</b>	69	176	245	113	132	245	110	135	245
Row %	28.2	71.8	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Chi-square value</b>	57.6896			104.5195			106.6006		
<b>p-value</b>	<0.0001			<0.0001			<0.0001		

**Table: Association of material of brushing with bleeding, pocket and LOA**

Material of Brushing	BLEEDING			POCKET			LOA		
	NO	YES	TOTAL	NO	YES	TOTAL	NO	YES	TOTAL
<b>CHARCOL</b>	0	1	1	0	1	1	0	1	1
Row %	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0
Col %	0.0	0.6	0.4	0.0	0.8	0.4	0.0	0.7	0.4
<b>HAND</b>	0	2	2	1	1	2	0	2	2
Row %	0.0	100.0	100.0	50.0	50.0	100.0	0.0	100.0	100.0
Col %	0.0	1.1	0.8	0.9	0.8	0.8	0.0	1.5	0.8
<b>MISWAK</b>	0	1	1	0	1	1	0	1	1
Row %	0.0	100.0	100.0	0.0	100.0	100.0	0.0	100.0	100.0
Col %	0.0	0.6	0.4	0.0	0.8	0.4	0.0	0.7	0.4
<b>Tooth Brush</b>	69	172	241	112	129	241	110	131	241
Row %	28.6	71.4	100.0	46.5	53.5	100.0	45.6	54.4	100.0
Col %	100.0	97.7	98.4	99.1	97.7	98.4	100.0	97.0	98.4
<b>TOTAL</b>	69	176	245	113	132	245	110	135	245
Row %	28.2	71.8	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Chi-square value</b>	1.5942			1.7361			3.3134		
<b>p-value</b>	0.6607			0.6289			0.3458		

**Table: Association of Last Saw dentist with bleeding, pocket and LOA**

Last Saw dentist	BLEEDING			POCKET			LOA		
	NO	YES	TOTAL	NO	YES	TOTAL	NO	YES	TOTAL
<b>1</b>	8	25	33	14	19	33	11	22	33
Row %	24.2	75.8	100.0	42.4	57.6	100.0	33.3	66.7	100.0
Col %	11.6	14.2	13.5	12.4	14.4	13.5	10.0	16.3	13.5
<b>2</b>	2	9	11	5	6	11	6	5	11
Row %	18.2	81.8	100.0	45.5	54.5	100.0	54.5	45.5	100.0
Col %	2.9	5.1	4.5	4.4	4.5	4.5	5.5	3.7	4.5

<b>3</b>									
Row %	28.6	71.4	100.0	57.1	42.9	100.0	42.9	57.1	100.0
Col %	2.9	2.8	2.9	3.5	2.3	2.9	2.7	3.0	2.9
<b>4</b>									
Row %	8	20	28	10	18	28	12	16	28
Col %	28.6	71.4	100.0	35.7	64.3	100.0	42.9	57.1	100.0
Col %	11.6	11.4	11.4	8.8	13.6	11.4	10.9	11.9	11.4
<b>5</b>									
Row %	16	30	46	21	25	46	23	23	46
Col %	34.8	65.2	100.0	45.7	54.3	100.0	50.0	50.0	100.0
Col %	23.2	17.0	18.8	18.6	18.9	18.8	20.9	17.0	18.8
<b>6</b>									
Row %	33	87	120	59	61	120	55	65	120
Col %	27.5	72.5	100.0	49.2	50.8	100.0	45.8	54.2	100.0
Col %	47.8	49.4	49.0	52.2	46.2	49.0	50.0	48.1	49.0
<b>TOTAL</b>									
Row %	69	176	245	113	132	245	110	135	245
Col %	28.2	71.8	100.0	46.1	53.9	100.0	44.9	55.1	100.0
Col %	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<b>Chi-square value</b>	1.8176			2.1980			2.7832		
<b>p-value</b>	0.8738			0.8211			0.7334		

## REFERENCES

1. Van der Velden U: The onset age of periodontal destruction. *J Clin Periodontol.* 1991 Jul; 18(6):380-83.
2. Bertoldi C, Lalla M, Pradelli JM, Cortellini P, Lucchi A, Zaffe D. Risk factors and socio-economic condition effects on periodontal and dental health: A pilot study among adults over fifty years of age. *Eur J Dent.* 2013;7(3):336-46.
3. Shaju JP, Zende RM, Das M. Prevalence of periodontitis in the Indian population: A literature review. *J Indian Soc Periodontol.* 2011;15(1):29-34.
4. Oral health surveys : basic methods, 4th ed. World Health Organization.
5. Gonçalves PC, Vinholis AH, Garcia PP, Corona SA, Pereira OL. Considerations about plaque control programs. *Robrac* 1998;7:36-9.
6. Wiley JA, Camacho TC. Lifestyle and future health: Evidence from the Alameda county study. *Prev Med.* 1980;9:1-21.
7. Richard P, Gururajarao TR, Chava V. Influence of lifestyle, gender and socioeconomic status as determinants of dental health behavior, periodontal status awareness. *J PFA.* 2000;14:21-5.
8. Alwaeli HA, Al-Jundi SH. Periodontal disease awareness among pregnant women and its relationship with socio-demographic variables. *Int J Dent Hyg.* 2005;3:74-82.
9. Sanders AE, Slade GD, Turrell G, John Spencer A, Marcenes W. The shape of the socioeconomic-oral health gradient: Implications for theoretical explanations. *Community Dent Oral Epidemiol.* 2006;34:310-9.
10. Rajala M, Honkala E, Rimpela M, Lammi S. Tooth brushing in relation to other health habits in Finland. *Community Dent Oral Epidemiol.* 1980;8:391-5.