

# Associations Between Periodontal Health and Demographics, Self-reported Oral Hygiene Habits/Practice and Overall Satisfaction with Oral Health

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## ABSTRACT

**Objective:** The objective of this study was to explore associations between individuals' demographics, reported overall satisfaction with oral health, oral hygiene practices and gingival/periodontal health. **Methods:** Five hundred and five generally healthy adults were recruited for this study. Study subjects completed a questionnaire consisting of questions regarding demographics, oral hygiene practices and overall satisfaction regarding oral health. Clinical measurements included Gingival Index (GI), Total Bleeding Sites (TBS), Probing Pocket Depth (PPD) and Periodontal Attachment Level (PAL). Relationships between clinical indices and questionnaire questions were analyzed with ANOVA. **Results:** There were 375 females and 130 males in the study. Their ages ranged from 21 to 91 years old with a mean of  $44.8 \pm 0.6$ . The mean GI score was 1.13, mean TBS was 40.74, average PPD was 2.24 mm and mean PAL was 1.22 mm. Thirty-four percent of subjects had at least 2 sites with  $PPD \geq 5$  mm. All clinical indices were significantly associated with demographics such as age, gender, income and smoking habit ( $p < 0.05$ ). GI and TBS were significantly associated with self-reported oral hygiene practices such as brushing/flossing frequency, frequency of professional cleaning and attitude towards tooth brushing ( $p < 0.01$ ). All clinical indices were also associated with overall satisfaction with oral health (mouth, teeth, gum and tooth color,  $p < 0.05$ ). **Conclusion: The data demonstrate that periodontal health is strongly associated with demographics, self-reported oral hygiene practices and overall patient satisfaction with oral health.**

## INTRODUCTION

Periodontal diseases are among the most common, chronic human diseases. They are inflammatory diseases initiated by bacterial infections, and they are also believed to be multifactorial diseases, which involve many risk factors. While the majority of the population is susceptible to periodontitis, only a small portion is affected. This suggests that these diseases are preventable. However, to a large extent, their prevention depends on individuals' oral hygiene attitudes and behaviors.

The objective of this study was to explore associations between individuals' demographics, reported overall satisfaction with oral health, oral hygiene practices and gingival/periodontal health in a cross-sectional US population.

## MATERIALS AND METHODS

Five hundred and five generally healthy adults were enrolled in this study. The subjects first completed a questionnaire consisting of a series of questions regarding demographics, oral hygiene habits/practices and overall satisfaction with oral health, and then they received a clinical examination that included Löe-Silness Gingival Index (GI), total bleeding sites (TBS) which is derived from GI, probing pocket depth (PPD) and periodontal attachment level (PAL) with a manual probe. Relationships between clinical indices and questionnaire questions were analyzed with ANOVA.

## RESULTS

There were 375 females and 130 males in the study. Their ages ranged from 21 to 91 years old with a mean of  $44.8 \pm 0.6$ . The mean GI score was 1.13, mean TBS was 40.74, average PPD was 2.24 mm and mean PAL was 1.22 mm. Thirty-four percent of subjects had at least 2 sites with  $PPD \geq 5$  mm. All clinical indices were significantly associated with demographics such as age, gender, income and smoking habit ( $p < 0.05$ ) (Table 1). GI and TBS were significantly associated with self-reported oral hygiene habits/practices such as brushing/flossing frequency, frequency of professional cleaning and attitude towards tooth brushing ( $p < 0.01$ ) (Table 2). All clinical indices were also associated with overall satisfaction with oral health (mouth, teeth, gum and tooth color,  $p < 0.05$ ) (Table 3).

Table 1. Demographics vs. PPD

Demographics	n	Mean PPD (mm)	p
<i>Age</i>			
< 54	390	2.27	
$\geq 54$	115	2.15	<0.01
<i>Gender</i>			
Male	130	2.35	
Female	375	2.20	<0.01
<i>Income</i>			
< 40K	241	2.30	
$\geq 40K$	252	2.19	0.02
<i>Smoking History</i>			
Past/Current	192	2.31	
Never	303	2.20	<0.01

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**Table 2. Oral Hygiene Habits/Practices vs. GI and TBS**

Oral Hygiene Habits/Practice	n	Mean GI	Mean TBS	p
<i>Brushing Attitude</i>				
Hate it/Necessary evil	28	1.42	63.82	
Don't mind it	248	1.15	43.14	
Like it/Love it	230	1.07	36.03	<0.01
<i>Brushing Frequency</i>				
< 1/day	12	1.63	87.08	
1/day	140	1.16	45.75	
2/day - More	349	1.10	37.60	<0.01
<i>Cleaning after Brushing</i>				
Poor - Fair	40	1.46	69.80	
Good	242	1.19	45.23	
Very good - Excellent	220	0.99	30.11	<0.01
<i>Flossing Frequency</i>				
Never - Once/week	253	1.21	48.56	
Several times/week	171	1.12	37.89	
Once/day - More	81	0.91	24.84	<0.01
<i>Last Professional Cleaning</i>				
Never - MT 12 m ago	122	1.30	57.57	
3-6 or 6-12 m ago	234	1.10	38.19	
Within last 3 month	137	1.01	29.18	<0.01

**Table 3. Overall Satisfaction with Oral Health vs. PAL**

Overall Satisfaction	n	Mean PAL (mm)	p
<i>Overall Mouth Health</i>			
Very Disat - Neither Disat nor Sat	189	1.36	
Sat/Very Sat	316	1.13	<0.01
<i>Overall Teeth Health</i>			
Very Disat	12	1.73	
Disat/Neither Disat nor Sat	182	1.30	
Sat/Very Sat	310	1.15	<0.01
<i>Overall Gum Health</i>			
Very Disat	8	1.96	
Disat/Neither Disat nor Sat	217	1.32	
Sat/Very Sat	279	1.11	<0.01
<i>Color of Teeth</i>			
Very Disat - Neither Disat nor Sat	327	1.26	
Sat/Very Sat	177	1.13	0.01

## CONCLUSION

The data demonstrate that gingival/periodontal health is strongly associated with demographics, self-reported oral hygiene habits/practices and overall patient satisfaction with oral health.