

Does any relationship exist between self reported gingival bleeding, oral health perception, practices and concerns?

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ABSTRACT

Background: The objective was to determine the relationship between self-reported gingival bleeding, oral health perception, practices and concerns. **Materials and Methods:** This cross-sectional survey among undergraduates of University of Benin, Benin City, Nigeria was conducted between April and May, 2011 using a self-administered 21-item structured questionnaire. Data analysis was done using Statistical Packages for the Social Sciences and $P < 0.05$ was considered significant. **Results:** Out of the 400 questionnaires that were distributed, 338 were returned filled giving a retrieval rate of 84.5%. About three-quarters (71.3%) of the respondents were younger than 22 years. Males constituted 65.1% while the remaining 34.9% were females. The prevalence of self-reported gingival bleeding among respondents in this study was 12.7%. Individuals with gingival bleeding were significantly more likely to rate their dental and gingival health as fair/poor, use strong brushing stroke during tooth brushing and report worsening condition of teeth despite daily tooth brushing, express worry about the gingival color and less likely to be satisfied about the appearance of their teeth and to have received professional instruction on tooth brushing. **Conclusion:** Data from this survey revealed an established relationship between gingival bleeding, perceived dental and gingival health, tooth brushing force, professional instruction on tooth brushing, perception of the condition of teeth in relation to daily tooth brushing, worry about the color of gingiva, and satisfaction with the appearance of the teeth.

Key words: Gingival bleeding, perceived dental health, perceived gingival health, tooth brushing

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INTRODUCTION

Gingival bleeding is a prevalent manifestation of periodontal diseases and also results from direct trauma, viral, fungal or bacterial infection, drugs, pregnancy, dermatoses, and systemic conditions.^{1,2} However, persistent gingival bleeding may be due to serious medical conditions such as leukemia and bleeding and platelet disorders.^{3,4}

Gingiva is pink and firm, tapered contoured tissue surrounding the teeth which in health does not bleed on probing and tooth brushing. Gingival bleeding occurs mainly due to inadequate plaque removal which results in the thinning, ulceration,

necrosis of gingival epithelia coupled with engorgement of blood vessel. Gingival bleeding on tooth brushing is a form of provoked gingival bleeding, a vital feature and probably one of the most frequent complaints among patients with periodontal disease. Gingival bleeding occurs alongside other manifestations of periodontal diseases like gingival swelling, halitosis, food packing, pain, gingival recession, and tooth mobility.² The blood from gingival bleeding may be tasted and smelt on the affected individual's breath reflecting its association with dysgeusia and halitosis.^{5,6} Gingival bleeding is so common that it is not given serious attention and even considered as normal among Nigerians and Chinese immigrants in Montreal despite being an indicator of pathology.^{7,8} A study showed that gingival bleeding was not perceived as an indicator of inflammatory disease thus hindering the propensity to seek professional care.⁹ In hospital-based studies in South-West⁷ and South-East regions of Nigeria,¹⁰ the prevalence of gingival bleeding were reported as ≈25% and 28.8% respectively.

Although, the prevalence of gingival bleeding can be assessed objectively by bleeding on probing (BOP), the

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subjective assessment using gingival bleeding on tooth brushing has been significantly correlated with BOP and clinical findings of bleeding.¹¹⁻¹⁴ Authors have considered self-reported gingival bleeding, a useful method for monitoring the gingival health of populations during clinical or group oral health promotion aimed at enhancing periodontal awareness.^{12,13} The objective of the study was to determine the relationship that exists between self-reported gingival bleeding, oral health perception, practices and concerns.

MATERIALS AND METHODS

This cross-sectional survey among undergraduate of University of Benin, Benin City, Nigeria was conducted between April and May 2011. All undergraduate students undergoing their academic pursuit in the Ugbowo campus of University of Benin except dental and medical students and students with diagnosed systemic disease were included in the study. A self-administered 21-item structured questionnaire in English language was used for data collection. The questionnaire elicited information on demography (age and gender), perceived dental and gingival health, dentist visit, tooth brushing, worry about symptoms of oral diseases, satisfaction with the appearance of teeth, and smoking behaviors. Perceived dental and gingival health was each assessed using the single-item global oral health-rating question. "How would you describe the health of your teeth" and "how would you describe the health of your gum" The responses were excellent, good, fair or poor. The remaining 17 questions which assessed dentist visit (2 questions), tooth brushing (7 questions), other oral hygiene measures (2 questions), gingival bleeding on tooth brushing (1 question) worry about symptoms of oral diseases (3 questions), satisfaction with the appearance of teeth (1 question), and smoking behaviors (1 question) had dichotomous yes or no response. The questionnaire was developed following relevant literature review by the experienced researchers who are periodontologists. The questionnaire was pretested among the dental students of the same university to eliminate flaws and ensure validity. The questionnaires were administered and completed in the classroom by the undergraduates and returned in anonymous envelope. The participants were informed about the objective of the study after which informed consent was obtained. Participation in the survey was voluntary, no incentive was offered and anonymity was assured all the participants. Data analysis was done using Statistical Packages for the Social Sciences (SPSS) version 16.0. The responses on perceived dental and gingival health were categorized into two as excellent/good and fair/poor. The participants were finally divided into two groups for the purpose of analysis: the first group that have experienced gingival bleeding were those that

responded yes to question on gingival bleeding on tooth brushing while the second group that have not experienced gingival bleeding were those that responded no to question on gingival bleeding on tooth brushing. These two groups were then compared and a test of significance was done using with chi-square statistics. $P < 0.05$ was considered significant.

RESULTS

Out of the 400 questionnaires that were distributed, 338 were returned filled giving a retrieval rate of 84.5%. About three-quarters (71.3%) of the respondents were less than 22 years old. Males constituted 65.1% while the remaining 34.9% were females. The prevalence of gingival bleeding among respondents in this study was 12.7% [Table 1]. Age and gender did not significantly affect the prevalence of gingival bleeding [Table 2]. Individuals with gingival bleeding were significantly more likely to rate their dental and gingival health as fair/poor [Table 3], use excessive force during tooth brushing, less likely to have received professional instruction on tooth brushing and report worsening

Table 1: Prevalence of gingival bleeding among the respondents

Gingival bleeding	Frequency (n)	Percent
Yes	43	12.7
No	295	87.3
Total	338	100.0

Table 2: Demographic characteristics and gingival bleeding experience among the respondents

Characteristics	Gingival bleeding			P value
	Yes (%)	No (%)	Total (%)	
Age (years)				
<22	25 (58.1)	216 (73.2)	241 (71.3)	0.099
22–24	13 (30.2)	62 (21.0)	75 (22.2)	
>25	5 (11.6)	17 (5.8)	22 (6.5)	
Gender				
Male	28 (65.1)	192 (65.1)	220 (65.1)	0.997
Female	15 (34.9)	103 (34.9)	118 (34.9)	
Total	43 (100.0)	295 (100.0)	338 (100.0)	

Table 3: Perceived oral health status and gingival bleeding experience among the respondents

Characteristics	Gingival bleeding			P value
	Yes (%)	No (%)	Total (%)	
Perceived dental status				
Excellent/good	33 (76.7)	262 (88.8)	295 (87.3)	0.026
Fair/poor	10 (23.3)	33 (11.2)	43 (12.7)	
Perceived gingival status				
Excellent/good	31 (72.1)	254 (86.1)	285 (84.3)	0.018
Fair/poor	12 (27.9)	41 (13.9)	53 (15.7)	
Total	43 (100.0)	295 (100.0)	338 (100.0)	

condition of teeth despite daily tooth brushing [Table 4], There was no significant relationship between gingival bleeding experience, dental visit, and other oral health behavior [Table 5]. Individuals with gingival bleeding were also more likely to express worry about the color of their gingiva and less likely to be satisfied about the appearance of their teeth [Table 6].

DISCUSSION

About three-quarters (71.3%) of the respondents were less than 22 years old. Males constituted 65.1% while the remaining 34.9% were females. In this study, the prevalence of gingival bleeding was 12.7% which is comparable to the findings reported among secondary

Table 4: Relationship between tooth brushing instruction, belief, behavior, and gingival bleeding experience among the respondents

Characteristics	Gingival bleeding			P value
	Yes (%)	No (%)	Total (%)	
Twice daily brushing or more				
Yes	21 (48.8)	156 (52.9)	177 (52.4)	0.620
No	22 (51.2)	139 (47.1)	161 (47.6)	
No receipt of professional instruction tooth brushing				
Yes	24 (55.8)	117 (39.7)	141 (41.7)	0.045
No	19 (44.2)	178 (60.3)	197 (58.3)	
Perceived worsening condition of teeth despite daily tooth brushing				
Yes	11 (25.6)	25 (8.5)	36 (10.7)	0.001
No	32 (74.4)	270 (91.5)	302 (89.3)	
Use strong brushing stroke during tooth brushing				
Yes	22 (51.2)	76 (25.8)	98 (29.0)	0.001
No	21 (48.8)	219 (74.2)	240 (71.0)	
Perceived prolonged tooth brushing duration				
Yes	15 (34.9)	65 (22.0)	80 (23.7)	0.064
No	28 (65.1)	230 (78.0)	258 (76.3)	
Belief in the possibility of adequate tooth cleaning without toothpaste				
Yes	7 (16.3)	34 (11.5)	41 (12.1)	0.372
No	36 (83.7)	261 (88.5)	297 (87.9)	
Belief that tooth brushing alone cannot prevent periodontal disease				
Yes	21 (48.8)	142 (48.1)	163 (48.2)	0.932
No	22 (51.2)	153 (51.9)	175 (51.8)	
Total	43 (100.0)	295 (100.0)	338 (100.0)	

Table 5: Relationship between dental visit pattern, other oral health behavior, and gingival bleeding experience among the respondents

Characteristics	Gingival bleeding			P value
	Yes (%)	No (%)	Total (%)	
Previous dental visit/treatment				
Yes	10 (23.3)	66 (22.4)	76 (22.5)	0.897
No	33 (76.7)	229 (77.6)	262 (77.5)	
Preference for curative dental care				
Yes	19 (44.2)	143 (48.5)	162 (47.9)	0.599
No	24 (55.8)	152 (51.5)	176 (52.1)	
Regular dental floss user				
Yes	12 (27.9)	61 (20.7)	73 (21.6)	0.282
No	31 (72.1)	234 (79.3)	265 (78.4)	
Regular mouthwash user				
Yes	20 (46.5)	103 (34.9)	123 (36.4)	0.140
No	23 (53.5)	192 (65.1)	215 (63.6)	
Smoke cigarette				
Yes	3 (7.0)	7 (2.4)	10 (3.0)	0.097
No	40 (93.0)	288 (97.6)	328 (97.0)	
Total	43 (100.0)	295 (100.0)	338 (100.0)	

Table 6: Relationship between satisfaction with appearance of teeth, worry toward oral health, and gingival bleeding experience among the respondents

Characteristics	Gingival bleeding			P value
	Yes (%)	No (%)	Total (%)	
Satisfaction with the appearance of teeth				
Yes	20 (46.5)	187 (63.4)	207 (61.2)	0.034
No	23 (53.5)	108 (36.6)	131 (38.8)	
Worried about mouth odor				
Yes	25 (58.1)	174 (59.0)	199 (58.9)	0.916
No	18 (41.9)	121 (41.0)	139 (41.1)	
Worried about color of the gingiva				
Yes	16 (37.2)	68 (23.1)	84 (24.9)	0.009
No	27 (62.8)	227 (76.9)	254 (75.1)	
Worried about the color of teeth				
Yes	26 (60.5)	138 (46.8)	164 (48.5)	0.093
No	17 (39.5)	157 (53.2)	174 (51.5)	
Total	43 (100.0)	295 (100.0)	338 (100.0)	

school students in Ethiopia (17.4%),¹⁵ young army recruits in Israel (18.8%),⁵ and dental students in Saudi Arabia (19.2%).¹⁶ However, it is lower than ≈25% and 28.8% reported among patients attending a tertiary Hospital in South-West⁷ and South-East regions of Nigeria¹⁰ respectively. It is also lower than 27.9% reported among adults in Kuwait.¹⁷ The lower prevalence recorded in this study may be connected with the fact that the study respondents were young adults as it is a known fact that the prevalence, extent, and severity of periodontal disease increased with increasing aging.

In this study, individuals with gingival bleeding were significantly more likely to rate their dental and gingival health as fair/poor, use excessive force during tooth brushing, less likely to have received professional instruction on tooth brushing and report worsening condition of teeth despite daily tooth brushing. Gingival bleeding outside pregnancy is clearly related to perceived oral health.⁹ The gingival bleeding which occurs in conjunction with other features of periodontal disease may have influenced the sufferers into rating their dental and gingival health as fair/poor. The higher nonreceipt of professional instruction on tooth brushing among individuals with gingival bleeding may explain the inadequacy tooth brushing technique such as use of excessive force during tooth brushing and also the perceived worsening condition of teeth despite daily tooth brushing.

Individuals with gingival bleeding were also more likely to express worry about the color of their gingiva and less likely to be satisfied about the appearance of their teeth. This may be hinged on the fact that gingival bleeding exerts unfavorable effect on esthetics and self-esteem,¹⁸ self-control,¹⁹ oral health-related quality of life²⁰ and occurs with other indicator of poor oral health like poor oral hygiene, altered gingival appearance, halitosis, toothache, gingival recession, and tooth mobility.

CONCLUSION

Data from this survey revealed an established relationship between self-reported gingival bleeding, perceived dental health, perceived gingival health, tooth brushing force, receipt of professional instruction on tooth brushing, perception of the condition of teeth in relation to daily tooth brushing, satisfaction with the appearance of the teeth, and worry about the color of gingiva. Appropriate measures to prevent and control this condition will definitely include professional dissemination of instruction on tooth brushing.

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