A study of tooth brushing pattern and its effects on dental tissues in Obafemi Awolowo University students

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Abstract

Objective: To determine the tooth brushing patterns among Obafemi Awolowo University (OAU) students and the effects on dental tissues.
Method: A convenient sampling technique was used to select 100 undergraduate students of the Obafemi Awolowo University. A self administered questionnaire designed to determine respondents' demographics and tooth brushing techniques was employed. Thereafter, dental examination was carried out on all respondents. Data was inputted and subjected to computer analysis using the Statistical package for social science version 17.0 (SPSS).
Result: Majority (95%) of the respondents used toothbrush in cleaning their teeth while 7% combined toothbrush and chewing stick. Ninety nine percent of the respondents used toothpaste in cleaning their teeth, 72.7% of the respondents brushed their teeth once a day and 24.2% brushed twice a day. Fifty two percent of the respondents who brushed twice a day were females, while 48% were males. The pattern of tooth brushing was correct in 51.7% of the respondents as reported. Use of highly abrasive agents was also rare. Gingival recession was found in 31% of subjects (p=0.15) that employed hard texture toothbrush. The prevalence of non carious cervical lesion was 3% and these lesions were found in males only.
Conclusion: The pattern of tooth brushing was correct in 51.7% of the respondents as reported. However the effect on dental tissues though present is not exaggerated when compared to other studies done in other parts of the world.

Key words: Tooth brushing pattern, dental tissue, gingival recession, non carious cervical lesion

Introduction

Tooth brushing is the act of using a brush of varying design to brush the teeth and massage the gingivae for cleanliness and oral health[1]. Bacteria plaque is a key player in the aetiology of dental caries, and periodontal disease. Touching the social aspect of life, proper tooth brushing reduces halitosis, and helps to remove stains from tooth surfaces.
The toothbrush is an implement with bristles fixed to a head at the end of a handle, used for cleaning the teeth and massaging gingival tissues[2]. Various designs of the implement have emerged over time with a bid to enhance functionality[2].
The American Dental Association recommends a soft-bristle toothbrush for routine tooth brushing and that a toothbrush should be changed at least once in three month. Various patterns of tooth brushing techniques have been reported. They include vertical, horizontal, a combination of both vertical and horizontal or rotational strokes. Using an improper tooth brushing technique with a hard-bristle toothbrush can be detrimental to oral health. This could result in tooth surface loss and gingival recession[3,4].
Tooth abrasion is the pathologic wearing of tooth structure by an external mechanical source[2]. It can occur on any part of the tooth surface and structure. Although clinically detectable, it may be symptomatic or asymptomatic depending on the tooth structure affected. Gingival recession on the other hand is defined simply as the drawing back of gingivae from the necks of the teeth, with exposure of root surfaces[5]. It may result from aggressive tooth brushing, adult orthodontic movement of teeth, sensitivity to detergent such as sodium lauryl sulphate, bruxism, improper flossing and periodontal disease[5]. Its risk factors are; high level of dental plaque and calculus, male gender, smoking duration, toothbrushing frequency, traumatic toothbrushing and high frenum[6]. This study was designed to determine the pattern of tooth brushing techniques employed by selected undergraduates in Obafemi Awolowo University (OAU) and also to determine the effects of these brushing techniques and toothbrush texture on dental tissues.

Materials and method

This study employed a descriptive design to evaluate the pattern of tooth brushing and its effects on hard dental tissues among undergraduates in Obafemi Awolowo University (OAU) students. OAU, Ile-Ife is located in south western Nigeria, and it comprises of thirteen faculties. The study population comprised of randomly selected Undergraduates from all the faculties.
A convenient sampling technique was used to select 100 students with no consideration for gender.

Having calibrated the examiner AEE for reproducibility, a structured self administered questionnaire was used to collect data from the respondents. The questionnaire comprised of four sections:
Section A: Respondent's demographic data
Section B: The pattern of tooth brushing among OAU students.
Section C: Perception of the effects of tooth brushing on dental tissues.
Section D: Findings on examination of the dental tissues. (Appendix 1)
Sections A to C of the questionnaires were completed by subjects and retrieved immediately, then dental examination was carried under optimal illumination by an Author (AEE) and findings recorded in section D. Gingival recession was scored as present whenever the free gingival margin was apical to the cemento-enamel junction and root surface was exposed. Non Carious Cervical Lesion (NCCL) was said to be present when there is a change in contour (loss of enamel surface characteristics), when there is a defect or there is pulp exposure or there is secondary dentine exposure in the cervical margin of the tooth. (Using the 'Smith and Knight Tooth Wear Index', with severity not considered). The teeth were numbered using the World Dental Federation (FDI) notation. Data was inputted into a personal computer and subjected to computer analysis using the Statistical package for social science version 17.0 (SPSS). The results were presented graphically and in tabular forms. Chi square test was applied appropriately and statistical significance was inferred at $p<0.05$.

Result

One hundred subjects aged 16 to 29 years were studied. A slight female preponderance was observed **(Table 1)**. Subjects' mean age (SD) was 21.9 (3.1) while their median age and modal ages were 22 and 18 years respectively. Close to half of respondents (47%) were from the non-biological sciences faculties while 35% were from biological sciences and 18% from art based faculties.

Table 1: Socio-demographic characteristics of respondents

Age group (Years)	Male No(%)	Female No(%)	Total No(%)
16-20	7(7.0)	28.(28.0)	35(35.0)
21-25	28(28.0)	22(22.0)	50(50.0)
=25	12(12.0)	3(3.0)	15(15.0)
Total	**47(47.0)**	**53(53.0)**	**100(100.0)**

$x^2 = 18.4$, df = 2, p = <0.001

Respondents were from 100 to 600 levels of studies but majority were from the 200 and 300 levels and the least representation was from the 600 level **(Figure 1)**.
The commonest single agent used was toothbrush /toothpaste(toothbrush only) (85%) while the commonest combination was toothbrush/ toothpaste and chewing stick (7%). Use of dental floss as a cleaning aid was very unpopular (6.3%) **(Table 2)**.

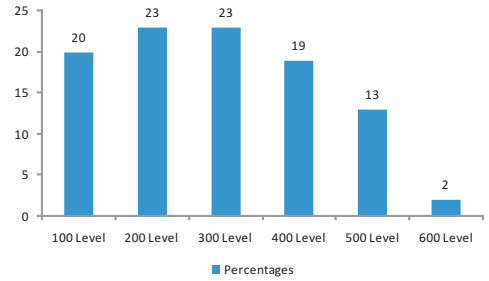


Figure 1. Distribution of respondents by their levels

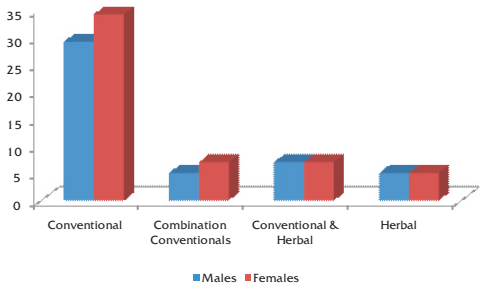
Table 2: Distribution and combination of tooth cleaning material used by respondent

Tooth cleaning materials	No. of respondent	(%)
Toothbrush	95	88.8
Chewing stick	7	6.5
Cotton wool	2	1.9
Others	3	2.8
Total	**107**	**100.0**
Tooth cleaning materials as combined in use		
Toothbrush only	85	85
Toothbrush and chewing stick	7	7
Toothbrush and others	3	3
Others	5	5
Total	**100**	**100.0**
Other aids used		
Tooth paste	99	52.1
Tooth pick	46	24.2
Mouth wash	26	13.7
Dental floss	12	6.3
Abrasive powder	4	2.1
Charcoal	3	1.6
Total	**190**	**100.0**

NB: Totals exceeding 100 in table 2 above are due to use of more than one material by some respondents.

Majority of respondents use smooth textured toothpastes (78/99), while in the remainder, (21/99), their toothpastes contained abrasives. Also, 73/99 respondents use a single brand of toothpaste (63 conventional and 10 herbal) while 12/26 respondents employ various brands of conventional toothpastes and 14/26 use conventional and herbal toothpastes **(Figure 2)**.
Most respondents (53.3%) used medium textured toothbrushes and a significant majority (72.7%) brush once a day while only 24.2% brush twice daily.
Frequency of tooth brushing and toothpaste combinations did not differ significantly between male and female respondents **(Table 4)**.

Majority of the respondents (62.9%) claimed to use moderate force in brushing, only 3.1 % admitted to using heavy force while 33% graded the force exerted as light. The said force was assessed subjectively and its measure depends on the respondent's perception and personal grading. Since two respondents may judge same force differently, this is a limitation of this study.



χ^2 = 0.24 , df = 3, p= 0.97

Figure 2. Distribution of toothpaste combination used by respondents' gender

60.2% of respondents spend over 2 minutes in tooth brushing. About half of them (52.1%) laid claim to brushing their teeth correctly (up and down strokes). Expectedly, majority of the respondents were right handed (94.9%), and an almost equal proportion engaged their right hands in tooth brushing. 23.2% of respondents reported injury to their gum during tooth brushing. This was occasional in majority of the subjects (63.2%) and a frequent occurrence in only one respondent (2.6%). 18.1% of respondents with teeth defects did not perceive that they had defects on their teeth, but 19.1% did. Most subjects (58.8%) did not know why they had the defects, others attributed their perceived defects to toothbrush pressure (29.4%).

A total of 3,099 teeth were examined in 100 subjects. 62% of respondents had all their teeth present and the rest had varying numbers of missing teeth. Non carious cervical lesion and gingival recession were found in 3 and 16 subjects respectively. A total of 11 teeth had non carious cervical lesion (prevalence =0.35%) while 62 teeth were affected by gingival recession (prevalence =2.0%). All NCCL were located in the mandibular left quadrant in right handed individuals.

Three ambidextrous individuals identified themselves as right handed in tooth brushing while only one of them reported left handedness in tooth brushing. Out of the 47 males and 53 females that were examined, 11(23.4%) and 5(9.4%) had gingival recession and/or NCCL respectively. Sixteen respondents used hard texture toothbrush, out of which 5(31%) had gingival recession and/or NCCL and 8(15%) of the 53 respondents that used medium texture toothbrush had gingival recession and/or NCCL **(Table 5)**.

Table 3: Frequency of toothbrushing and toothpaste combination

Variables	Gender	
	Males No(%)	Females No (%)
Frequency of Toothbrushing		
Once a day	36(50%)	36(50%)
Twice a day	12(48%)	13(52%)
More than twice a day	1 (50%)	1 (50%)

χ^2 =0.03, df = 2, p = 0.99

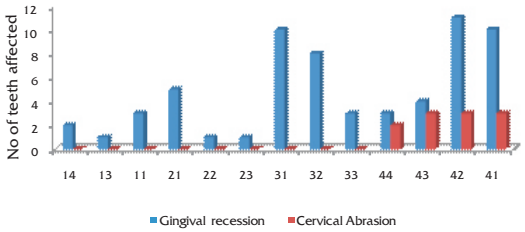


Figure 3. Distribution of gingival recession and non carious cervical lesion by tooth type

Table 4: Time spent in tooth brushing, brushing technique and handedness

Time spent in brushing (minutes)	**No(%)**
Less than 2 minutes	39(39.8)
Between 2-3 minutes	38(38.8)
More than 3 minutes	21(21.4)
Total	**98(100.0)**
Toothbrush movement	
Up and down strokes	74(51.7)
Side to side	53(37.1)
Circular	16(11.2)
Total	**143(100.0)**
Respondents' handedness	
Right handed	92(92.0)
Left handed	3(3.0)
Ambidextrous	5(5.0)
Total	**100(100.0)**
Hand used in brushing	
Right hand	95(95.0)
Left hand	4(4.0)
Both hands	1(1.0)
Total	**100(100)**

NB: Two respondents did not indicate the time spent in brushing hence total is 98. Combination of movements engaged in tooth brushing accounted for a total of 143 toothbrush movements recorded.

Table 5: Effects of tooth brushing practices on dental tissues

Variables	Gingival recession		NCCL		GR and or NCCL	
	Yes	NO	Yes	NO	Yes	No
Brushing techniques	NO(%)	NO(%)	NO(%)	NO(%)	NO(%)	NO(%)
Side to side only	1(7.0)	13(93.0)	1(7.1)	13(93.0)	1(7.0)	13(93.0)
Up and down only	8(22.2)	28(77.8)	1(2.8)	35(97.2)	8(22.2)	28(77.8)
Circular/ round only	1 (17.0)	6 (83.0)	1 (14.0)	6 (86.0)	1(17.0)	6(83.0)
Combination of more-than one technique	6 (16.0)	32 (84.0)	0 (0.0)	38 (100.0)	6(16.0)	32(84.0)
	χ^2= **1.7 df= 3 p= 0.6**		χ^2= **4.8 df= 3 p=0.2**			
Toothbrush texture						
Soft	2 (8.3)	22(91.7)	0 (0.0)	24(100.0)	2(8.3)	22(91.7)
Medium	8 (15.0)	45 (85.0)	1 (1.9)	52(97.1)	8(15.0)	45(85.0)
Hard	5 (31.0)	11 (69.0)	2(12.5)	14(87.5)	5(31.0)	11(69.0)
Not sure	1 (17.0)	5 (83.0)	0 (0.0)	6 (100.0)	1(17.0)	5(83.0)
	χ^2= **3.8 df= 3 p= 0.2**		χ^2=**6.06 df= 3 p= 0.1**		**p=0.28**	
Force on brushing						
Light	5 (15.6)	27(84.4)	1 (3.0)	31 (97.0)	5(15.6)	27(84.4)
Moderate	10 (16.0)	51 (84.0)	2 (3.0)	59 (97.0)	10(16.0)	51(84.0)
Heavy	0 (0.0)	3 (100.0)	0 (0.0)	3 (100.0)	0 (0.0)	3 (100.0)
I don't know	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)
	p=0.81		**p=0.99**		**p=0.86**	
Hand often used in brushing						
Right	14(15.2)	81(84.8)	3 (3.3)	89(96.7)	14(15.2)	81(84.8)
Left	2 (50.0)	2 (50.0)	0 (0.0)	4 (100.0)	2(50.0)	2(50.0)
Interchanging both	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)
	p=0.17		**p=0.92**		**p=0.16**	
Gender						
Male	11(23.4)	36(77.6)	3 (6.4)	44(93.6)	11(23.4)	36(77.6)
Female	5 (9.4)	48(90.6)	0 (0.0)	53 (100.0)	5(9.4)	48(90.6)
	χ^2=**3.6**	**p=0.057**	**p=0.062**		**p=0.14**	
Toothpaste texture						
Smooth	13(16.7)	65(83.3)	2 (2.6)	76(97.4)	13(16.7)	65(83.3)
Smooth with small granules	2 (1.0)	18 (99.0)	1 (5.0)	19 (95.0)	2(1.0)	18(99.0)
Smooth with big granules	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)	0 (0.0)	1 (100.0)
	p=0.69		**p=0.84**		**p=0.7**	
Frequency brushing						
Once a day	13(18.1)	59(81.9)	1(1.4)	71(98.6)	13(18.1)	59(81.9)
Twice a day	2(8.3)	22(91.7%)	1(4.2%)	23(95.8)	2(8.3)	22(91.7)
More than twice a day	1(50.0)	1(50.0)	1(50.0)	1(50.0)	1(50.0)	1(50.0)
Others	0 (0.0)	1 (100.0	0 (0.0)	1 (100.0	0 (0.0)	1 (100.0
	p=0.37		**p=0.001**		**p=0.40**	
Duration of toothbrushing						
Less than 2 minutes	4(10.3)	35(89.7)	0(0.0)	39(100.0)	4(10.3)	35(89.7)
Between 2-3 minutes	8(21.1)	30(78.9)	2(5.3)	36(94.7)	8(21.1)	30(78.9)
More than 3 minutes	4(19.0)	17(81.0)	1(4.8)	20(85.2)	4(19.0)	17(81.0)
	p=0.41		**p=0.36**		**p=0.50**	
Perceived tooth surface loss						
Yes	2(11.8)	15(88.2)	0 (0.0)	17(100.0)	2(11.8)	15(88.2)
No	13(18.1)	59(81.9)	3(4.2)	69(95.8)	13(18.1)	59(81.9)
	p=0.42		**p=0.53**		**p=0.42**	

Discussion

Historically, diverse methods and aids have been employed in maintaining oral health. The relationship between tooth surface integrity and methods of teeth cleaning have been reported in scientific literature. While the aids employed in tooth cleaning can be said to vary between socioeconomic classes, the attendant effect(s) of such aids in Nigerian undergraduates have not been reported to the best of our knowledge.

One hundred subjects were selected by convenient sampling and a slight female preponderance which did not attain statistical significance was observed. The peak age of subjects at 16-29 years is a clear reflection of the pattern of the age of undergraduates in Obafemi Awolowo University (one of the few Universities that admit student less than 18 years in Nigeria).

Also, the greatest percentage of the respondents are in 200 and 300 levels, accounting for about 23% each, with only 2% in 600 levels. Again this is a true reflection of the pattern of students' population and length of courses offered on the campus. While most courses span four years, very few last five or six years.

Minority of our respondents were art students and a majority from the non biological based sciences. This distribution cannot be related directly to the proportion of student population on the campus but can be attributed to chance as a convenient sampling technique was used.

As expected in an academic community, 95% of the respondents used toothbrush in cleaning their teeth. 85% used toothbrush alone, while 12% combined toothbrush with other tooth cleaning materials, with toothbrush and chewing stick being the commonest combination, accounting for 7%. This is in agreement with the findings of Umesi-Koleoso, et al who reported 96.3% toothbrush use and 4% combination with chewing stick[7] in Lagos State Nigeria. These finding continue to corroborate the fact that chewing sticks; the traditional cleaning aid among most Nigerians has not gone into extinction[8,9]. Its use among Nigerian undergraduates lends much credence to its existence in the present and younger generation.

The use of toothpaste from this study is popular among undergraduates as reported in 97% of respondents. A few decades ago, there were very few brands of toothpastes available on the Nigerian market. Events around the importation of goods into the country have since given rise to a multiplied variety of brands. Classified broadly as conventional and herbal toothpastes, majority of undergraduates use single brands of conventional toothpaste but over a quarter of them use combinations. Only 10% use herbal toothpastes, which are available but not very popular in the market.

This is probably because the conventional toothpastes are more readily available in the market in this environment while a number of respondents may not have developed enough confidence in the newly erupting brands of herbal toothpastes. Others possibly believe that herbal toothpastes should be applicable to a particular oral condition.

Out of those that used combination of toothpaste brands, 14% combined both herbal and conventional toothpastes, and 12% combined various conventional toothpastes, with the remaining 1% making up for those that did not respond to the question.

Herbal toothpastes are said to be made from natural ingredients. There is absolutely no difference in consistency of these toothpastes when compared with the conventional toothpastes. They are however different in their flavour.

It was also observed that more females (58%) combine conventional toothpastes. This is probably because females are more meticulous about their health and may not want to dabble into new products (herbal toothpastes) easily.

The presence of granules and abrasive components was elicited among 21% of respondents. Some of the respondents, (20.2%) classified their toothpaste as having small granules, and only 1% said they use toothpaste with granules classified as big. We believe that with the availability of diverse toothpaste types, more studies need to be conducted on toothpaste combination use and its effect in a wider population (possibly national).

The frequency of toothbrushing was predominantly once a day (72.7%) and a minority brushed twice a day. A slight female preponderance was observed among the few who brush twice a day. Our finding is at variance with the pattern in Scottish population reported by Oliverira et al where 71% of respondents brushed twice a day[10]. A significant proportion of respondents (61.5%) who brushed twice a day were females but only 52% were females in our study. The differences in proportion could be interpreted as an expression of a better oral hygiene practise among Scottish respondents than Nigerians. This appears to be more in female Scottish respondents than the female Nigerian undergraduates studied.

Unlike the 90% of respondents who used the horizontal "scrub" method,[6] reported by Poyato-Ferrera, et al, we found a 51.7% use of up and down stroke and a 37.1% horizontal scrub technique. The difference observed may be attributed to the educational status and possible consequent better oral health awareness in an academic environment, compared with an urban Spanish population. aged 18-30 years.

About 53.5% of the respondents used medium texture toothbrush, while 16.2% used hard textured toothbrush.

Most cases of gingival recession were associated with the use of medium texture (15%) and hard texture (31%) toothbrushes (p=0.15).

1.9% of respondents with non carious cervical lesion used of medium texture toothbrush and 12.5% used hard texture toothbrush. Despite the fact that respondents' measure of force used was absolutely subjective, and constitute a limitation, our finding is in agreement with the study conducted by Brandini et al,[4] which concluded that the use of medium and hard toothbrushes and greater force applied during tooth brushing might contribute to the development and/or aggravation of non carious cervical lesions[4].

Non carious cervical lesion in this study was found in a

total 11teeth out of all the teeth examined and has a prevalence of 3%, with all the cases seen in the male respondents. In a related study conducted by Smith WA et al, on patients with mean age 40.6 years in Trinidad, they recorded a prevalence of 62.2%[12] . Also, Brandini et al,[4] recorded a prevalence of 53%, among students (males aged 23.6±1.8yeras and females aged 22.3±2.4years) with males accounting for 80%[4]. The age difference between our group and Smith's may be enough reason for the disparity observed. It is not unlikely that additional factors like dietary and oral habits may have compounded the picture. The age group studied in this study compares quite favourably with Bradini's[4] but our findings contrast sharply. We opine that our group is probably better enlightened in tooth brushing technique and use of safe cleansing aids. The use of toothpicks in about a quarter of our respondents shows a substantial knowledge gap with regards to the use of toothpicks: and 22.2% of respondents who used vertical brushing technique (despite the use of smooth toothpaste) had gingival recession. Hence the force exerted and bristle strength may be implicated. Also, of the 3 respondents with non carious cervical lesion, 2 used smooth toothpaste while 1 used smooth toothpaste with small granules (p=0.602) while only 1 patient each applied horizontal scrub technique, vertical and circular motion in tooth brushing. This is at variance with a study conducted by Bergstrom J. et al, in 1979[13] . They concluded that tooth brushing factors related to the individual (brushing frequency and brushing technique) exert a greater influence than material-oriented tooth brushing factor such as dentifrice abrasivity and bristle stiffness[13]. We opine that our sample size and age group studied may be responsible for differences seen.

Less frequent tooth brushing means force over less time and more time before damage manifests. It is interesting to note that tooth surface loss was present in the left quadrant only and in respondents that are right handed. This is in line with the findings of Oginni et al, which concluded that NCCL was commoner in the left quadrant of right handed brushers, although their result did not attain statistical significance[14] .

The subject's perception of tooth surface loss was correct only in 2 respondents. This was a very low level of correctness. The need for routine dental check up in detecting, managing and preventing progression of these lesions is very important among undergraduates.

Conclusion and Recommendations

Most of the students studied have toothbrushing patterns which conform with the recommended standard by the American Dental Association (ADA), while some engaged in tooth brushing practices which greatly deviates from this recommended standard. This pattern could be as a result of poor oral health awareness imbibed from various family backgrounds.

Despite these varying patterns of tooth brushings, the effects on dental tissues is not marked compared with other studies conducted in other parts of the world, with gingival recession having a prevalence of 16% (affecting 2% of all the teeth examined) and non carious cervical lesion as low as 3% (accounting for 0.35% of all the teeth examined).

A low prevalence at this age group might however give way to a larger figure with time if bad brushing techniques are sustained. Hence, these findings notwithstanding, we advocate that effort should be made to educate the students on proper brushing techniques possibly at the orientation of undergraduates.

Aspects requiring improvement are frequency of tooth brushing, discouraging the use of harmful cleansing aids like abrasives, and enlightenment on the use of dental floss instead of toothpicks. Availability of convenient and affordable dental floss must accompany such enlightenment talks if knowledge acquired will be put to proper use.

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APPENDIX 1

PATTERN OF TOOTH BRUSHING AND ITS EFFECTS ON DENTAL TISSUES AMONG OBAFEMI AWOLOWO UNIVERSITY STUDENTS.

SECTION A:

Age.....Years..... Sex: Male ( ) Female ( )

Department/Faculty...../ .....

Level .....

SECTION B:

1) What do you use in cleaning your teeth? (Tick all applicable option or options).
Toothbrush ( ) Chewing stick ( ) Cotton wool ( ) Foam ( ) Finger ( ) Others ( )
2) What other aids do you or did you ever use in cleaning your teeth? (Tick all applicable options).
Tooth pick ( ) Toothpaste ( ) Dental floss ( ) Mouthwash ( ) Dental probe ( ) Charcoal ( ) Abrasive powder ( ) Grinded broken plates Others; specify.....
3) What toothpaste do you use? Give name(s).....
4) Describe the texture of the toothpaste. Smooth ( ) smooth with small granules ( ) smooth with big granules ( ) Others; specify.....
5) What texture of tooth brush do you use? ( ) Soft ( ) Medium ( ) Hard ( ) Not sure / don't know
6) How often do you brush your teeth? ( ) Once a day ( ) Twice a day ( )More than twice a day ( ) Alternate days Others (specify) .....
7) How long do you spend brushing your teeth at a time? Less than 2 minutes ( ) Between 2 to 3 minutes ( ) More than 3 minutes ( )
Others (specify).....
8) How do you move your tooth brush when brushing? (Pick more than one if appropriate) Up and down ( ) Side to side ( ) Circularly/round ( ) Others; specify.....
9) Are you right handed ( ), left handed ( ) or Ambidextrous (use both hands with equal ease ( )
10) Which hand do you use in brushing your teeth? Right hand ( ) Left hand ( ) interchange both hands ( )
11) Do you brush your teeth with force? ( ) Yes ( ) No
12) How would you grade the force you apply or exert during tooth brushing.
Light ( ) Moderate ( ) Heavy ( ) I don't know ( ).

SECTION C

13) Do you injure your gum when brushing? ( ) Yes ( ) No ( ) I don't think so
14) If yes, how often do you injure your gum? ( ) Always ( ) Occasionally ( ) Rarely
15) Have you noticed any groove or defect on the front surface of your teeth near your gum?
( ) Yes ( ) No
16) If yes what is / are the cause(s)? .....

SECTION D (Examination)

Teeth present 

Teeth with gingival recession 

Teeth with non carious cervical lesion 

Other Remarks .....