

Gender Difference in Oral Hygiene Practice among a Population of First Year Students of University of Benin

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Abstract

Objective: There is an increased interest in looking at gender differences in health and disease, including oral health. This study assessed the gender differences in oral health habits among first year undergraduate students.

Method: A descriptive cross-sectional study of first year undergraduate students with data collated using an interviewer administered questionnaire which elicited information on socio demographic characteristics of the participants, mouth cleaning habits and examination of the oral cavity to determine the oral hygiene status of the respondents. All data were analyzed using IBM SPSS version 20.0. The statistics carried out were frequency counts, percentages, mean, standard deviation, independent sample t-test and Chi square test.

Results: Two hundred first year students made up of 100 males and 100 females participated in this study. The association between frequency of tooth brushing and gender of respondents was not statistically significant. However, there was statistically significant association between time of brushing and gender of the respondents with a higher proportion of females brushing before breakfast and before bed and a higher proportion of males brushing before breakfast only. The association between duration of brushing and gender of respondents was statistically significant, with an increase in proportion of females as the duration of brushing increased. Similarly, there was statistically significant association between oral hygiene status and gender of the respondents with more males having fair oral hygiene while more females had good oral hygiene.

Conclusion: Gender differences do exist in oral hygiene practices among first year undergraduate students with female having better oral hygiene status than their male counterparts. This may be because the timing as well as duration of tooth brushing among females is significantly different from that of males.

Keywords: Oral health; Oral diseases; Dental floss; Sex differences

Introduction

Oral diseases are regarded as public health problems in developing countries due to their high prevalence, economic significance and adverse influence on the quality of life of affected individuals with prevention of oral diseases achievable by optimum oral hygiene practices [1]. Healthy habits and good oral hygiene, including twice daily brushing, are critical in preventing gum diseases and maintaining good oral health [2]. This is essential as oral diseases adversely affect concentration, interpersonal relationship and productivity due to the intricate relationship between oral health and general health [1]. Maintaining good oral health is important to being a healthy individual and has a role in an individual's longevity and happiness [3].

Oral health is a state of being free from mouth and facial pain, oral and throat cancer, oral infection and sores, periodontal (gum) disease, tooth decay, tooth loss, and other diseases and disorders that limit an individual's capacity in biting, chewing, smiling, speaking, and psychosocial wellbeing [4].

Oral hygiene has generally remained as a disregarded and unrealized foremost social problem with most people being unaware of its relationship with systemic diseases or disorders as most diseases first manifest through oral signs and symptoms and could remain undiagnosed or untreated due to lack of this awareness [5].

Two major factors; learned experience and culturally determined attitudes/beliefs/behaviors (social norms) are believed to be responsible for shaping attitudes and health behaviors [6,7].

However, several other factors have been reported to be associated with oral hygiene habits. These include socio-demographics,

socioeconomic status, oral health attitude, addictive risk such as smoking and alcohol use, dietary behaviour and mental health [8].

It is generally accepted that with the exception of puberty and pregnancy, females exhibit lower periodontal diseases prevalence and severity than males [9]. This difference is mainly attributed to better oral health behavior and hygiene status among females [10]. While hormonal and other physiological and behavioral differences between the two genders may also contribute to the higher risk for periodontal diseases in males than in females [9].

Furthermore, there is an increased interest in looking at gender differences in health and disease, including oral health [11]. The issue of gender as it pertains to oral health is one that needs to be considered both from a biological and an environmental point of view, as both factors play a major role in shaping the differences in oral health that are observed between men and women in all societies [12].

The need for emphasis on oral health education in university curriculums during university study has been advocated [13-15]. The first-year undergraduate students are young adolescents transiting into adulthood and are being introduced into an independent lifestyle

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which may have an impact on their general health and by extension their oral health.

It is pertinent to determine if there are any gender differences in oral hygiene practices among this group of undergraduates as this will help in planning interventions to improve oral health at this stage of independence. Furthermore, there is paucity of studies on the oral hygiene practices of fresh year undergraduate students in developing countries including Nigeria. Hence, the need for this study which aims to assess the gender differences in oral health habits among first year undergraduate students.

Materials and Methods

This was a descriptive cross-sectional study of 200 first year undergraduate students who were in their mid-second semester at the University of Benin. A multi-stage sampling technique was employed to recruit participants. Four hostels were selected from the eight undergraduate's hostels in the main campus using simple random sampling. The hostels were arranged in alphabetical order and numbered 1-8. There were four yes and four no ballot papers. Eight individuals numbered 1-8 balloted and four hostels were selected. The second stage involved the selection of first year undergraduate students using a convenient sampling technique.

In the selected hostels, 240 rooms were estimated per hostel. Systematic sampling technique was employed to select 10 rooms per hostel by selecting every 24 rooms per hostel. The total rooms selected from the four hostels were 40 rooms.

In the selected rooms, all the first-year undergraduate occupants were recruited (cluster sampling) on the assumption that there were five first year undergraduate students per room.

Data for this study was obtained by means of an interviewer administered questionnaire which elicited information on socio demographic characteristics of the participants (Age, Gender, Faculty of study), mouth cleaning habits and examination of the oral cavity to determine the oral hygiene status of the respondents. The oral hygiene status was evaluated using the simplified Oral hygiene index by Greene and Vermillion [16]. Scores obtained were subsequently graded as follows: Good=0.0 -1.2; Fair \geq 1.2- 3.0 and Poor $>$ 3.0. Prior to commencement of this study, the data collection instrument was subjected face validity by pretesting on 10 first year undergraduate students who were not included in this study and content validity by 2 consultant dental surgeons. This was to determine the appropriateness of the instrument for collecting the required data.

Oral and written Informed consent was obtained from the respondents who were assured of confidentiality of their responses and the opportunity to withdraw at any time without prejudice in line with Helsinki's declaration.

All data were retrieved, sorted, screened for completeness, coded, collated and analyzed using IBM SPSS version 20. Quantitative variables which were normally distributed were expressed as frequencies, percentages, mean and standard deviation. Cross tabulations, Chi square test and independent sample t-test were used were applicable with p set at 0.05. The results obtained were presented in the form of statements and tables.

Results

The participants' age ranged from 15-23 years with a mean age of 18.12 ± 4.0 years. A higher proportion of the respondents 180 (90%)

were between the age group 15-20 years. While a few 20 (10%) were between the age group 21-23 years. There was equal distribution of respondents across gender. Various faculties of study were represented as depicted in Table 1.

Table 2 shows the mouth cleaning habits of the respondents by gender. A large proportion of respondents 120 (60%) brushed twice daily, of which 62 (51.7%) were females and 58 (48.3%) were males. The association between frequency of teeth brushing and gender of respondents was not statistically significant $p=0.66$.

Less than half 91 (45.5%) of the respondents brushed before and after bed, of which 50 (54.9%) of the respondents were males and 41 (45.1%) of the respondents were females. Less than a quarter 43 (21.5%) of the respondents brushed before breakfast only of which 26 (60.5%) of the respondents were males and 17 (39.5%) of the respondents were females. Similarly, 34 (17%) of the respondents brushed after breakfast only of which 18 (52.9%) were females and 16 (47.1%) were males. The association between time of brushing and gender of the respondents was statistically significant with a higher proportion of females brushing before breakfast and before bed and a higher proportion of males brushing before breakfast only ($p=0.011$).

For duration of brushing, over half 104 (52%) of the respondents brushed for 1-2 minutes of which 57 (54.8%) were males and 47

Characteristics	Frequency	Percent
Age group (years)		
15-17	90	45
18-20	90	45
21-23	20	10
Faculty of study		
Social sciences	23	11.5
Arts	26	13
Education	21	10.5
Law	45	22.5
Life sciences	28	14
Physical sciences	33	16.5
Medical sciences	24	12
Total	200	100

Table 1: Socio-demographic characteristics of respondents.

Brushing habits	Male n (%)	Female n (%)	Total n (%)
Once	40 (54.1)	34 (45.9)	74 (100.0)
Twice	58 (48.3)	62 (51.7)	120 (100.0)
Thrice	2 (40.0)	3 (60.0)	5 (100.0)
No specific frequency	0 (0.0)	1 (100.0)	1 (100.0)
Brushing time	$\chi^2=13.405, p=0.011$		
Before bed only	0 (0.0)	2 (100.0)	2 (100.0)
After breakfast only	16 (47.1)	18 (52.9)	34 (100.0)
Before breakfast only	26 (60.5)	17 (39.5)	43 (100.0)
Before and after bed	50 (54.9)	41 (45.1)	91 (100.0)
Before breakfast and before bed	6 (22.2)	21 (77.8)	27 (100.0)
Any time	2 (66.7)	1 (33.3)	3 (100.0)
Duration of brushing	$\chi^2 = 6.923, p = 0.05$		
<1 minute	26 (56.5)	20 (43.5)	46 (100.0)
1-2 minutes	57 (54.8)	47 (45.2)	104 (100.0)
>2-4minutes	16 (34.0)	31 (66.0)	47 (100.0)
>4 minutes	1 (33.3)	2 (66.7)	3 (100.0)
Total	100 (50.0)	100 (50.0)	200 (100.0)

Table 2: Mouth cleansing habits in relation to gender.

(45.2%) were females. Less than a quarter 46 (23%) of the respondents brushed for less than a minute of which 26 (56.5%) were males and 20 (43.5%) were females. Only 3 (1.5%) brushed for more than four minutes of which 2 (66.7%) were females and 1 (33.3%) were males. The association between duration of brushing and gender of respondents was statistically significant, with an increase in proportion of females as the duration of brushing increased ($p=0.05$).

Table 3 shows that a higher proportion of male respondents were aware of dental floss however less than half reported using it. Also, 78 (39.0%) of the respondents claimed they do not floss despite being aware of what a dental floss is. While 62 (31.0%) of the respondents flossed their teeth and 60 (30.0%) knew nothing about flossing. There was no statistical significance between gender and use of dental floss ($p=0.33$).

The mean OHI scores of male respondents was higher (1.96) compared to their female counterparts (1.94) although, this was not statistically significant ($p=0.05$). However, there was statistically significant association between oral hygiene status and gender of the respondents with more males 96 (52.7%) having fair oral hygiene with an OHI score of 1.3-3 than females 86 (47.3%). While more females 10 (71.4%) had good oral hygiene with an OHI score of 0-1.2 than males 4 (28.6%). Only 4 (2%) of the respondents had poor oral hygiene with an OHI score of >3 and these were all females ($p=0.018$) (Table 4).

Discussion

The mouth particularly plays a very fundamental role in maintaining the health of the body with poor oral hygiene associated with increasing occurrence of dental caries among the younger age group [15,17]. University study days are thought to be a transient period which may be regarded as the last period for possible alteration of oral health habits before adulthood with advocacy for oral health education to be emphasized in university curriculums for non-dental students during their university study [13,15].

The finding that females had more positive behavior than males concerning brushing frequency may be attributed to the fact that women usually care more about their body and appearance and therefore, they may be more concerned about adopting behaviors and habits, which promote their dental health [18]. This finding was in accordance with those reported for dental students of several other countries although in most of these studies, sex differences were greater [19-21]. This greater difference may be due to the fact that the students evaluated in this study were not dental students as

dental students' improved oral health could be linked to their dental education experience and dental students tend to have the best access to information and motivation for the prevention and treatment of oral diseases [22,23]. Furthermore, it has been reported that women have lower oral health self-assessment and thus, they tend to be readier to adopt better oral health behavior as they age or acquire dental health knowledge, compared to men [24-26].

It was observed that females brushed their teeth significantly more often when compared to their male counterparts. This is similar to previous studies in which it was observed that males brushed once a day while females tend to brush more frequently [2,27-30]. Similarly, the effect of gender on the oral health status and behavior of students initially tested by bivariate analysis showed that the only significant differences between males and females concerned brushing frequency and oral hygiene status with subsequent meta-analysis of the data showing that only tooth brushing frequency was significantly affected by gender [23].

A statistically significant association was observed between time of brushing as well as duration of brushing and gender of the respondents with more females brushing before breakfast and before bed and brushing for a longer duration, a finding similar to a previous report [31]. This further supports previous reports that females have better oral health attitudes than their male counterparts [14,23].

Although a higher proportion of males were aware of dental floss, usage was not commensurate, a finding which supports a previous report that more males do not use floss [14]. There was no statistically significant association between gender and dental floss use. A finding contrary to that observed in a previous study that reported regular use of dental floss among females [32].

Females also had a better oral hygiene status than males in this study a finding similar to previous reports [9,11,23]. Oral hygiene is believed to be an important individual behavior which affects oral health and tends to be influenced by an individual's gender [23]. This difference may be attributed to hormonal and/or physiological differences [33]. Also, it is generally accepted that with the exception of puberty and pregnancy, females exhibit lower periodontal diseases prevalence and severity than males [9]. This difference is mainly attributed to better oral health behavior and hygiene status among females, while hormonal and other physiological and behavioral differences between the two genders may also contribute to the higher risk for periodontal diseases in males than in females [9,10].

Conclusion

Gender differences do exist in oral hygiene practices among first year undergraduate students with female having better oral hygiene status than their male counterparts. This may be because the timing as well as duration of tooth brushing among females is significantly different from that of males.

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Use of dental floss	Gender		Total n (%)
	Male n (%)	Female n (%)	
Aware and use	27 (43.5)	35 (56.5)	62 (100.0)
Aware but do not use	44 (56.4)	34 (43.6)	78 (100.0)
Not aware of dental floss	29	31	60 (100.0)
Total	100 (50.0)	100 (50.0)	200 (100.0)

Table 3: Use of dental floss in relation to gender ($X^2=2.381$, $p=0.330$).

Oral hygiene	Gender		Total
	Male n (%)	Female n (%)	
Good (0-1.2.0)	4 (28.6)	10 (71.4)	14 (100.0)
Fair (>1.2-3)	96 (52.7)	86 (47.3)	182 (100.0)
Good (>3)	0 (0.0)	4 (100.0)	4 (100.0)
Total	100	100	200 (100.0)

Table 4: Oral hygiene in relation to gender ($X^2= 6.754$, $p=0.018$).

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