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Oral Hygiene Practices, Status, and Oral Health-Seeking Behaviors of Students at the College of Health and Well-Being, Kintampo, Ghana

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Abstract— **Oral health knowledge is an essential prerequisite for health-related practices, and studies have shown that there is an association between increased knowledge and better oral health. Those who have assimilated the knowledge and feel a sense of personal control over their oral health are more likely to adopt self-care practices. The purpose of this study was to assess the oral hygiene practices, status and the oral health status of screened students for the 2020/2021 academic year at the College of Health and Well-being, Kintampo. A descriptive cross-sectional study design was employed for the study with a sample size of 380 participants.**

From the study, 212(55.8%) brush their teeth twice daily while 162(42.6%) brush their teeth once daily. More than half 348(91.6%) of the participants responded that they use toothbrushes and toothpaste in cleaning their teeth. 197(51.8%) of the participants have visited the dentist before out of this number, 76(38.6%) of them complained of toothache whiles 44(22.3%) visited the dentist for a routine dental check-up. The majority 67(34%) of the respondents went to the dentist for tooth extraction. With respect to the oral health status of the participants, whiles majority, 72.6% of the respondents had plaque deposits on examination.

Although over half of the participants brushed twice daily, there was high prevalence of plaque deposits. Dental visits were problem-driven with the commonest treatment being extractions and the commonest complain being toothache. This highlights a reliance on curative rather than preventive care, underscoring the urgent need for stronger oral health education and promotion interventions.

Index Terms— **Oral health, toothbrush, gingivitis, periodontal disease, dental caries**

I. Introduction

A healthy mouth is a unique and priceless treasure, and it is regarded as a fundamental human right to maintain good oral health (Jin et al., 2016). Oral health is traditionally defined as an oral status that is free of diseases, which not only makes people look beautiful but also contributes to the normal function of the mouth (Kumar et al., 2017).

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In 2016, the Federal Dental International (FDI) Dental World Federation redefined oral health comprehensively, recognizing that oral health was multifaceted and involved the ability to smell, touch, taste, chew, swallow, smile, speak, and convey a lot of emotions through facial expressions with confidence and without discomfort, pain, and disease of the craniofacial region (Glick et al., 2016). According to W.H.O (2016), oral health is an integral part of general health, essential for well-being, and a determinant factor for quality of life. It is a key indicator of overall health, well-being, and quality of life and encompasses a range of diseases and conditions that include dental caries, Periodontal disease, Tooth loss, Oral cancer, Oral manifestations of HIV infection, Oro-dental trauma, Noma and birth defects such as cleft lip and palate. Oral diseases are among the most common diseases worldwide that have serious health and economic burdens, significantly affecting the quality of life for those affected. Dental caries (tooth decay), periodontal disease, tooth loss, and cancers of the lips and oral cavity are the most common and detrimental dental disorders worldwide (Peres et al., 2019). While oral diseases are largely preventable, they remain highly prevalent, representing pervasive social and economic disparities and insufficient resources for prevention and care, especially in low-income and middle-income countries (LMICs). Oral disorders are persistent and strongly socially striped, as with most non-communicable diseases (NCDs). The most affected by oral diseases are children living in poverty, economically disadvantaged communities, and the aged are the most prevalent group influenced by the conditions and have inadequate access to dental services. Oral infections remain largely unresolved in many LMICs because the medical costs outweigh the services available (Peres et al., 2019). The personal effects of persistent untreated oral diseases are often serious and may include relentless pain, sepsis, and decreased quality of life, loss of school days, family life disturbance, and diminished effectiveness at work. This study sought to assess the oral hygiene practices and the prevalence of oral health conditions and the oral health status of screened students for College of Health and Well-being, Kintampo (COHWK), to assess the oral hygiene practices and oral health status among the students.

II. METHODOLOGY

A. *Study Area and Population*

The study area is the College of Health and Well-Being in Kintampo Ghana. The College is a Health Training Institution The institution was established under the Ministry of Health to train middle- and higher-level health professionals. The school runs about fourteen (14) programs ranging from

clinical and public health related courses. The study population for this study entails all screened sandwich students for 2020/2021-year group at COHK. This study population was selected because despite the great triumphs in oral health, the burden of oral health diseases remains high in Africa particularly among students.

B. Study Design

This study is a quantitative study. A retrospective cross-sectional design was employed in assessing the oral health practices and the oral health status among the population.

C. Sample Size and Sampling Technique

The researchers accessed the data of newly admitted students for the 2020/2021 sandwich group who were screened at the Dental Clinic of the College of Health and Well-being. In all three hundred and eighty (380) students were screened.

D. Data Collection Tool, Procedure and Analysis

The primary data was collected from structured questionnaire consisting of close-ended and open-ended questions. The questionnaire for the primary data was sectioned into three parts. The first part captured the sociodemographic information, second part was the oral hygiene practices, the third part captured the oral health status and some of the common oral health conditions. The data was analyzed using Microsoft Excel and IBM Statistical Package for the Social Sciences (SPSS) version 25.0. The presentation of the data was carried out using tables, pie, and doughnut charts, and bar graphs from Microsoft Excel.

III. RESULTS

Table 1: Sociodemographic characteristics of participants

Sociodemographic Characteristics	frequency (f)	Percentage (%)
Gender		
Male	152	40.0
Female	228	60.0
Age		
20-25	50	13.2
26-30	86	22.6
31-35	109	28.7
36-40	96	25.3
41+	39	10.3
Marital Status		
Single	138	36.3
Married	240	63.2
Divorced	2	0.5
Total	380	100.0

Source: Field data, 2021

A total of 380 subjects were used in the study. Out of the total (380) participants who were used for the study, 152(40.0%) were males while 228(60.0%) were females as depicted.

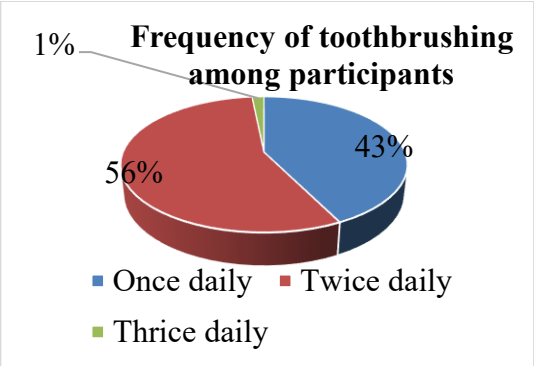

Figure 1: Frequency of toothbrushing among the participants

It was shown from the above figure that, out of the total 380(100%) participants that were involved in the study, the majority 212(55.8%) brush their teeth twice daily while 162(42.6%) were participants that brush their teeth once daily. The remaining 6(1.6%) were participants who responded that they brush their teeth thrice each day.

Table 2: Plaque score of participants

Plaque Score	Frequency (f)	Percentages %)
0-No debris	104	27.4
1-Soft debris covering not more than 1/3 of the tooth surface (Gingival)	119	31.3
2-Soft debris covering more than 1/3, but not more than 2/3 of the exposed tooth surface(middle)	90	23.7
3-Soft debris covering more than 2/3 of the exposed tooth surface(incisal)	67	17.6

Source: Field data, 2021

Majority 119(31.3%) of the study participants were those with soft debris covering not more than 1/3 of their tooth surface (Gingival). About 90(23.7%) of the participants were those whose plaque was covering more than 1/3, but not more than 2/3 of their exposed tooth surfaces. 104(27.4%) of them also were those with no debris (plaque) on their teeth.

Table 3: Plaque Control Methods among participants

Frequency of tooth brushing	Frequency (f)	Percentage (%)
Toothpaste and toothbrush	348	91.6
Chewing stick	16	4.2
Chewing sponge	10	2.6
Dental floss	6	1.6
Total	**380**	**100.0**

Source: Field data, 2021

Table 3 depicts that more than half 348(91.6%) of the participants responded that they use toothbrushes and toothpaste in controlling their plaque. About 16(4.2%) of them also responded that they use chewing sticks to control their plaque.

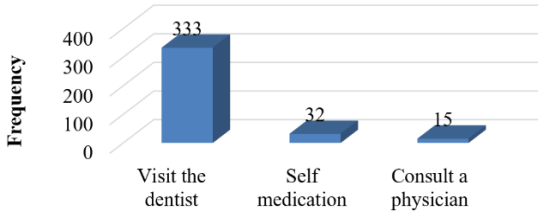

Figure 2: Knowledge of participants on what should be done when one experiences oral condition

It was shown that more than half 333(87.6%) of the participants responded that they would visit the dentist when they encounter an oral condition. 32(8.4%) of them also responded that they would take self-remedy while the 15(3.9%) said they will consult a physician.

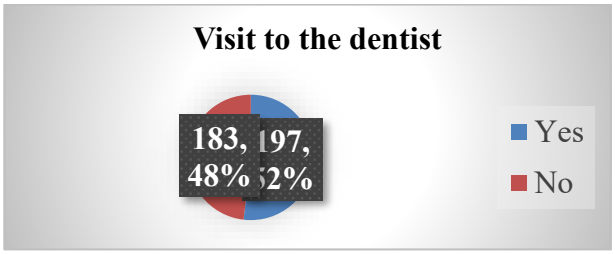

Figure 3: History of the past dental visits among the participants

It was depicted from the study that, the majority 197(51.8%) of the participants have visited the dentist while the remaining 183(48.2%) have never been to the dentist as shown in Figure 3

Table 4: Reasons for the dental visit among participants

Reasons for dental visit	Frequency(f)	Percentages (%)
Toothache	76	38.6
Dental check-up	44	22.3
Pericoronitis	14	7.1
Fractured anterior	9	4.6
Tooth Sensitivity	13	6.6
Tooth mobility	5	2.5
Bleeding gum	17	8.6
Others	19	9.6
Total	**197**	**100**

Source: Field data, 2021

The above table depicts that, out of the total 197(100%) of the study participants who responded that they have ever been to the dentist, the majority 76(38.6%) of them responded that they visited the dentist because of toothache. 44(22.3%) also responded that they visited the dentist for dental check-ups. Bleeding gum was experienced among 17(8.6%) of the participants which engendered them to see the dentist while 19(9.6%) of them also went to see the dentist because of other dental conditions or problems.

Table 5: Treatment is done among participants during their time of dental visit

Treatment done	Frequency (f)	Percentages (%)
Extraction	67	34.0
Scaling & Polishing	62	31.5
Pain relief and infection control	17	8.6
Operculectomy	11	5.6
Filling	40	20.3
Total	**197**	**100**

Source: Field data, 2021

It was revealed in the study that 197(100%) participants who visited the dentist, the majority 67(34%) of them went to extract their teeth. About 62(31.5%) of the participants also visited the dentist for dental check-ups while 40(20.3%) also visited the dentist for tooth filling or restoration.

Source: Field data, 2021

Table 6: Comparison of the reasons for the dentist the treatment done among the participants during their visit

	Treatment done					
Reasons for dental visit	**Extraction**	**SNP**	**Pain relief**	**Operculectomy**	**Filling**	**Total**
	N (%)	**N (%)**	**N (%)**	**N (%)**	**N (%)**	**N (%)**
Toothache	49 (24.89)	0(0.0)	5(2.54)	0(0.0)	22(11.17)	76(38.6)
Dental check-up	1(0.51)	43(21.79)	0(0.0)	0(0.0)	0(0.0)	44(22.3)
Pericoronitis	0(0.0)	0(0.0)	3(1.52)	11(5.58)	0(0.0)	14(7.1)
Fractured anterior	1(0.511)	0(0.0)	1(0.511)	0(0.0)	7(3.578)	9(4.6)
Sensitivity	0(0.0)	0(0.0)	7(3.55)	0(0.0)	6(3.05)	13(6.6)
Tooth mobility	5(2.5)	0(0.0)	0(0.0)	0(0.0)	0(0.0)	5(2.5)
Bleeding gum	0(0.0)	17(8.6)	0(0.0)	0(0.0)	0(0.0)	17(8.6)
Others	11(5.56)	2(1.01)	1(0.51)	0(0.0)	5(2.53)	19(9.6)
Total	**67(34.0)**	**62(31.5)**	**17(8.6)**	**11(5.6)**	**40(20.3)**	**197(100.0)**

The table shows that, of the total 76(36.6%) toothache conditions that sent the participants to see the dentist, the majority 49(24.89%) resulted in extracting their tooth/teeth while 22(11.17%) did filling. And of those who went to see the dentist as a result of dental check-up 44(22.3%), 43(21.79%) did scaling and polishing. About 19(9.6%) also visited the dentist due to other conditions of which majority 11(5.56%) of those unknown conditions resulted in tooth extraction and filling 5(2.53%).

A statistically significant association was found between the reasons for visiting the dentist and the treatment done for them ($p<0.05$).

IV. DISCUSSION

Oral health has remained an integral part of an individual's general health and overall well-being (Al Subait et al., 2016). Maintaining good oral hygiene is one of the most important things for healthy teeth and gums. Good oral health does not only enable a person to look and feel good, it is equally important in maintaining oral functions (Llena Puy, 2006). In spite of the great triumphs in oral health, the burden of oral health diseases remains high all over the world (Al Subait et al., 2016). This could be mainly because of the lack of acceptance of healthy oral habits that are crucial in controlling the most common oral diseases like dental caries and periodontal disease which are mainly considered behavioral diseases.

Out of the total participants who were used for the study, 152(40.0%) were males while 228(60.0%) were females as depicted in Table 1. The maximum age was above 41 years, and the minimum was 20 years. The mean age of the participants was 2.97, representing a standard deviation (SD) of 1.19. The majority of 109(28.7%) of the participants were between the age group 31-35 years while 96(25.3%) of the participants were those whose age falls within 36-40 years. Lastly, 138(36.3%) of the study participants were single while 240(63.2%) were married.

A. Oral Hygiene Practices

With regards to the oral hygiene practices among the participants, it was shown that, the majority 212(55.8%) brush their teeth twice daily while 162(42.6%) participants that brushed their teeth once daily. This is in accordance with a study conducted by Al Subait et al. (2016) where 66.5% reported brushing their teeth twice daily. It also disagrees with a study done by Kuppuswamy et al. (2014) which reveals that only 17% brushed twice a day. Similar results were also seen in a study done by Kumar (2012) in India who reported 90% of the students brushing twice a day, with only 14.6% brushing once daily. The remaining 6(1.6%) were participants who brushed their teeth thrice each day.

More than half 348(91.6%) of the participants responded that they use toothbrushes and toothpaste to control their plaque. About 16(4.2%) of them also responded that they use chewing sticks to control their plaque. This was comparable to a study done by Al Subait et al. (2016) that shows that three-fourths (3/4) of the participants were using toothbrushes as a brushing tool and very few participants were using miswak and toothpick. More than half of the participants were not using any dental floss or mouth rinses.

B. Oral Health Status

Again, with respect to the oral health status of the participants, whiles majority, 72.6% of the respondents had plaque deposits on examination. Only 27.4% of the population were plaque free on examination. It suggests that the most likely common disease these students might suffer from is gingival related diseases such as gingivitis, this is supported by a study by Tobin and Ajayi (2017) who intimates that plaque induced gingivitis is the commonest oral disease.

B. Oral Health-Seeking Behavior

More than half 333(87.6%) of the participants responded that they will only visit the dentist when they encounter an oral condition. 32(8.4%) of them also responded that they would take self-remedy to relieve their pains while the remaining 15(3.9%) said they would consult a physician.

It was depicted from the study that, the majority of 197(51.8%) of the participants have ever visited the dentist while the remaining 183(48.2%) have never been to the dentist as shown in Figure 3.

Moreover, concerning the reasons that made the participants pay visits to the dentist, it was revealed that out of the total 197(100%) of the study participants who have ever been to the dentist, majority 76(38.6%) of them visited the dentist as a result of toothache. A similar result was seen in a study done by (Al-Khabbaz, Al-Shammari, & Al-Saleh, 2011). 44(22.3%) also visited the dentist for dental check-ups. Bleeding gum 17(8.6%) was the troublesome condition that engendered most of them to see the dentist while 19(9.6%) of them also went to see the dentist as a result of other dental conditions or problems.

With regards to the treatments done during the periods, the participants visited the dentist, majority 67(34%) of them went to extract their teeth. This also agrees with the result seen in a study done by (Quijano, Shah, Schwarcz, Lalla, & Ostfeld, 2010). About 62(31.5%) of the participants also visited the dentist for dental check-ups while 40(20.3%) also visited the dentist for tooth filling or restoration. 17(8.6%) were also given pain relief and infection control during their period of dental visit.

Of the total 76(36.6%) toothache conditions that were recorded during their visits, majority 49(24.89%) of them opted for extraction while 22(11.17%) also did filling. And of those who went to see the dentist as a result of dental check-ups 44(22.3%), 43(21.79%) of them also opted for scaling and polishing. About 19(9.6%) also visited the dentist due to other conditions of which majority 11(5.56%) of those unknown conditions resulted in tooth extraction and filling 5(2.53%). A statistically significant association was found between the reasons for visiting the dentist and the treatment done for them ($p<0.05$). This was not so surprising to us because most of the reasons for the participants' visit to the dentist were as a result of toothache and dental -check-ups which may also engender to one's tooth/teeth being extracted or do a tooth restoration for them and also perform scaling and polishing for the person as well. Meyrema and Kedir (2018) showed in their study that 93.1% reported the experience of the participants cleaning their teeth. About 80.3% of the participants experienced oral problems in their life. 43.8% had gum bleeding, 31.5% had dental plaques. 40.8% who had a toothache and 68% had lost one of their teeth due to illness.

V. CONCLUSION

A little above half of the population reported of brushing twice a day, suggestive of a fairly good oral hygiene practices among the participants. However, nearly two-thirds of the study population had plaque deposits on examination reflects a fair oral hygiene status of the population. Dental service utilization among participants was largely problem-driven, those who sought for care were largely due to symptoms, particularly for toothache, which frequently they opted for tooth extractions. Notably, preventive visits such as routine dental check-ups were less common, as nearly half of the participants had never visited a dentist before. The was a significant association between the reason for dental visits and the treatments received which underscores the point that patients rely on curative care rather than preventive care, further highlighting the need for stronger oral health education and promotion interventions.

Limitations of the Study

Since this was secondary data, and the sample size cannot be determined until the data has been received, there might be a small sample size that will be used for the study which might not allow for the generalization of the results.

Ethical Consideration

The Director of the College of a Health and Well-Being, the Head of the Dental department of Kintampo Municipal Oral Health Training and Service Centre were first consulted to seek permission and approval to carry out the study. Further clarifications and the purpose of the study were elaborated on before the study was undertaken. Primary data was collected after students gave their consent and confidentiality of all respondents' information that was obtained was guaranteed before instrument and retrieval of data.

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Conflict of Conflict of Interest: None

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