KNOWLEDGE AND PRACTICE OF ORAL HYGIENE AMONG UNDERGRADUATES IN THE UNIVERSITY OF BENIN

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NOVEMBER, 2025

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A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT OF HEALTH, SAFETY AND ENVIRONMENTAL EDUCATION, FACULTY OF EDUCATION, UNIVERSITY OF BENIN, BENIN CITY, EDO STATE, IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF BACHELOR OF SCIENCE EDUCATION DEGREE B.Sc.(Ed.) IN HEALTH EDUCATION, UNIVERSITY OF BENIN, BENIN CITY.

NOVEMBER, 2025

CERTIFICATION

We, the undersigned, acknowledge that this research work was carried out by **Esomonu Chukwuma Prosper** with matriculation number **EDU2102572** in the Department of Health, Safety and Environmental Education, Faculty of Education, University of Benin.

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DEDICATION

This work is dedicated to God almighty.

ACKNOWLEDGEMENTS

With deep sense of gratitude, I give thanks to God almighty for his infinite mercies, provision, love, guidance, and protection all through the different phases of my academics pursuits.

The researchers extends his deepest appreciation to my supervisor, Dr Mrs Onobumeh, for her exceptional patience, insightful guidance, and steadfast support. Her invaluable expertise and constructive feedback have been pivotal in the successful completion of this work.

His heartfelt gratitude also goes to the Head of Department, Dr. (Mrs.) Obasuyi, and my esteemed lecturers: Prof. Igbudu, Dr. (Mrs.) Egbochukwu, Dr. (Mrs.) Enabulele, Dr. (Mrs.) Timbiri, Dr. (Mrs) Atehdor, Dr. (Mrs) Egbon, Dr. (Mrs) Don, Prof Igudia, Prof V.C.EdobaB.Omoregie, and Dr Mr. Daniel Aideyan as well as all other lecturers and non academic staffs. Their dedication to imparting knowledge and their unwavering support have significantly enriched my academic experience.

The researcher is eternally indebted to my parents, Mr. and Mrs Emmanuel (N) Esomonu whose unconditional love, endless prayers, and unwavering encouragement have been the bedrock of his achievements. Their sacrifices and belief in him have propelled him forward. I also acknowledge Mr Nkemjika (s) Esomonu and Mr Chinonso Esomonu. for their endless support and words of encouragement.

To my siblings, (Amaka, Nkemjika, Chinonso, Ngozi) constant support, understanding, and words of encouragement have been a source of strength and motivation. Your presence in my life has made this journey all the more meaningful.

The researcher is dearly grateful to everyone who has contributed to his academic success. God bless you all.

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ABSTRACT

This study examined the knowledge and practice of oral hygiene among undergraduate students of the University of Benin. Three research questions guided the study, and relevant literature was reviewed to provide a conceptual foundation. A descriptive survey design was adopted, with a study population of 40,318 students for the 2024/2025 academic session. A purposive sample of 308 undergraduates participated in the study. Data were collected using a well-structured questionnaire validated by experts in Health, Safety, and Environmental Education, while reliability was established using the Pearson Product Moment Correlation Coefficient (PPMC). Out of the 308 questionnaires administered, all were retrieved and analyzed using mean, standard deviation, frequency counts, and percentages.

Findings revealed that respondents possessed adequate knowledge of oral hygiene principles and benefits. However, the level of oral hygiene practice among students was moderate, suggesting a gap between knowledge and consistent practice. Personal motivation and awareness were identified as major influences on oral hygiene behavior, while economic, cultural, and institutional factors had minimal impact. The study concludes that although students demonstrate good knowledge and some positive oral health habits, there is a need to strengthen consistent preventive practices. It recommends sustained oral health education, improved access to dental care materials, and enhanced awareness campaigns to promote long-term oral hygiene behaviors among undergraduates.

CHAPTER ONE

INTRODUCTION

Background to the Study

A key element of general health is oral hygiene, which includes the consistent maintenance of the teeth, gums, and entire oral cavity in a clean and healthy state. In addition to preventing dental cavities and periodontal diseases, maintaining good oral hygiene is also critical for preventing systemic conditions like diabetes mellitus, respiratory infections, and cardiovascular diseases, all of which have been connected to poor oral health (Nazir, 2017). Around 3.5 billion people worldwide suffer from oral diseases, with untreated dental caries being the most common health condition (World Health Organization, 2022). In many developing nations, such as Nigeria, the prevalence of oral health problems among university students is increasing, frequently as a result of poor oral hygiene practices, a lack of awareness, and inadequate oral health services (Akaji, 2020). Undergraduate students, who are approaching adulthood, are especially at risk as they start to make independent decisions about their lifestyle, including oral health behavior (Kassebaum, 2017). Therefore, it is pertinent that they have adequate knowledge and good practices regarding oral hygiene practices.

The knowledge and practice of oral hygiene among university undergraduates are influenced by various factors, including socio-economic background, educational exposure, peer influence, access to dental care, and cultural attitudes (Al-Maweri et al., 2015). Oral hygiene is very essential in the general health and well-being of individuals which includes brushing twice daily, flossing, and frequent dental check ups. However, according to Peltzer & Pengpid (2018), while some students exhibit moderate to high knowledge about oral hygiene practices such as the significance of

brushing twice daily, flossing, and frequent dental check ups, the actual practice of these routines is often inconsistent or poor. Given that bad oral hygiene habits formed as a child can continue into adulthood and have long-term effects on oral and systemic health.

The overall disregard for oral health in the public health agenda and the dearth of sufficient oral health education initiatives aimed at young adults make the situation in Nigeria especially worrisome. Adekoya-Sofowora et al. (2016) stated that Nigerian students typically have low levels of oral hygiene knowledge and practice, which frequently results in high rates of dental caries, gingivitis, halitosis, and other oral conditions that affect academic performance, self-esteem, and general quality of life. Furthermore,regarding the use of oral hygiene products (like mouthwash, dental floss, and interdental brushes), the significance of regular dental checkups, and the role that diet plays in preserving oral health (Braimoh, Ogunbodede, & Adeniyi, 2014). Myths and misconceptions about dental care, financial obstacles, and dental procedure anxiety all contribute to these knowledge gaps (Braimoh, Ogunbodede, & Adeniyi, 2014).

One of the most important factors influencing undergraduates' oral health behaviors is their level of knowledge regarding oral hygiene. Although many students are generally aware of the significance of oral hygiene, including the need to clean their teeth and abstain from sugary foods, research shows that there is frequently a disconnect between knowledge and practice (Okeigbemen, 2020). Misconceptions, negative attitudes toward dental care, and the belief that oral health is less significant than other health issues are some of the causes that contribute to this disparity (Peltzer & Pengpid, 2018). For instance, due to time restrictions, forgetfulness, or a lack of access to appropriate dental care items, some students may comprehend the

importance of brushing their teeth twice a day but neglect to do so (Al-Maweri et al., 2015). University students' oral health habits are significantly shaped by their peers' conduct. Students frequently follow their friends' dental hygiene practices, which can have a beneficial or bad effect on their oral hygiene regimens (Al-Maweri et al., 2015). Additionally, socioeconomic position, cultural beliefs, and the accessibility of oral health services on campus all have an impact on students' attitudes regarding oral health care (Braimoh et al., 2014). The contribution of university health education programs to improving knowledge of oral hygiene must also be acknowledged. Although the efficiency of these programs varies, some colleges have put in place oral health education initiatives to enhance students' understanding and habits. Many students do not have access to regular, thorough instruction on good dental hygiene, thus they frequently rely on the scant knowledge offered in general health classes or unofficial sources (Peltzer & Pengpid, 2018).

According to Okeigbemen (2020), many students do not consistently exercise oral hygiene habits, even though they are aware of the fundamentals, such as brushing their teeth twice a day. Although students frequently understand that brushing their teeth is essential for maintaining good oral health, the practice of brushing twice a day is still not very common. This is frequently brought on by things like forgetfulness, a lack of time, or a lack of appropriate dental care supplies. While many students understand the importance of brushing and flossing, Adekoya-Sofowora et al. (2016) also discovered that a sizable portion of students do not routinely visit the dentist for professional care.The use of incorrect brushing techniques or insufficient brushing time is one of the most alarming trends in university students' oral hygiene practices. Many students employ inefficient brushing methods, such as brushing too quickly or using too much pressure, which lessens the practice's ability to remove food particles

and plaque (Braimoh, Ogunbodede, & Adeniyi, 2014). Additionally, many students may not know the value of oral hygiene items like mouthwash and tooth floss, or they are unable to include them in their daily routines because of expense or inconvenience (Al-Maweri et al., 2015). Additionally, students' oral hygiene practices are influenced by socioeconomic barriers. Financial limitations may make it difficult for students from lower socioeconomic backgrounds to obtain high-quality dental care supplies like toothpaste, toothbrushes, and floss. Additionally, the cost of professional dental services, including regular check-ups and cleanings, is often a barrier, leading many students to neglect their oral health needs (Al-Maweri et al., 2015). Even in institutions where dental care services are provided on campus, students may not take full use of these services due to lack of awareness or perceived difficulty. The lack of frequent oral health education on university campuses also adds to poor oral hygiene practices. While students may be exposed to basic health education during their early years of schooling, particular and focused education on the necessity of maintaining adequate dental hygiene is often lacking at the university level. Students may not completely understand the long-term effects of poor dental hygiene if they do not receive thorough oral health education, which could result in careless behavior (Braimoh et al., 2014). University students may also put other facets of their health ahead of their oral health, treating it as a secondary issue because they are frequently under a lot of stress from their studies.

Furthermore, because of their altered lifestyles, growing independence, and dietary habits, which may include consuming more sugary foods and drinks, university students need special attention regarding their oral hygiene habits (Ling et al., 2020). These elements, along with hectic schedules and academic stress, can cause people to neglect maintaining their oral health. According to Peltzer & Pengpid, (2018) while

college students may have a reasonable understanding of oral health, their habits frequently do not meet recommended standards. University undergraduates' oral hygiene habits are influenced by a number of factors. Knowledge plays a central role, as individuals with higher knowledge levels about oral diseases and prevention are more likely to engage in positive oral hygiene behaviors (Sani et al., 2019).

Another factor is socioeconomic status; students from wealthier families frequently have easier access to dental care and oral hygiene supplies (Kumar et al., 2017). Some students may undervalue the significance of preventive care or turn to traditional remedies, which are further influenced by cultural beliefs and attitudes regarding oral health (Folayan et al., 2021). Furthermore, it has been demonstrated that exposure to oral health education campaigns, parental education, and peer pressure all have a major impact on dental hygiene practices (Petersen & Ogawa, 2018).

According to Folayan et al. (2014), although Nigerian university students knew enough about brushing their teeth, very few of them regularly flossed or went to the dentist for preventive care. Similarly, Sani et al. (2019) discovered that even among undergraduates who enrolled in health-related courses, irregular dental visits and poor brushing habits were prevalent. Nevertheless, a large portion of the current research has been carried out among dental students or in particular faculties, with little attention paid to the larger undergraduate population across different disciplines. Inappropriate brushing methods, flossing neglect, infrequent tooth cleaning, and skipping routine dental checkups can all result from a lack of knowledge about oral hygiene. It might also lead to a dependence on false information or inefficient techniques, like the idea that mouthwash can take the place of brushing or that chewing sticks by themselves are sufficient for cleaning (Petersen & Ogawa, 2018). Such knowledge gaps have far-reaching effects, such as a higher risk of cavities, gum

disease, tooth loss, foul breath, and oral infections that can spread to other body parts (Peres et al., 2019). In addition, pain, difficulty focusing in class, low self-esteem because of aesthetic issues, and high treatment expenses are all consequences of poor oral health (WHO, 2022).

Undergraduates' oral hygiene in Nigeria has revealed disparities in knowledge and generally poor habits. According to Folayan et al. (2014), despite knowing how important brushing is, very few students regularly flossed or went to their dentists for checkups. Similarly, Sani et al. (2019) found that many undergraduates only went to the dentist when they were in pain and used incorrect brushing techniques. This study therefore seeks to investigate undergraduate students' oral hygiene knowledge and practices, with an emphasis on how knowledge affects practices. The study will offer insights that can aid in the creation of more successful health education initiatives by identifying the elements that contribute to the knowledge-practice gap. In the end, raising undergraduates' awareness of and adherence to oral hygiene practices will benefit their oral health, academic achievement, and general well-being.

Statement of the Problem

Oral hygiene plays a crucial role in maintaining overall health, as poor oral health has been linked to various systemic diseases such as cardiovascular conditions, diabetes and respiratory infections (Peres et al., 2019). Despite the widespread availability of oral hygiene information, many young adults, including university undergraduates, often exhibit inadequate oral health practices, such as irregular tooth brushing, poor flossing habits, and infrequent dental check-ups (Peltzer & Pengpid, 2018). As university students transition into independent living, they may experience changes in their eating habits, lifestyle, and academic demands that may affect their knowledge and practices oral hygiene.

Several studies have examined oral hygiene among students in different contexts. For example, Al-Omiri et al. (2012) discovered that although Jordanian university students had a comparatively high level of dental knowledge, their actual oral hygiene habits varied. Similar findings were made by Folayan et al. (2021) in Nigeria, who found that while students understood the value of maintaining good oral hygiene, their habits did not always follow suggested guidelines. Sani et al. (2019) found that while oral hygiene practices like routine flossing and dental checkups were low, oral hygiene knowledge was generally moderate among Nigerian undergraduates. However, the majority of these studies ignored the level of students knowledge about oral hygiene, their oral hygiene practices and the factors that influenced their oral hygiene practices among general undergraduate population across a variety of disciplines or students from particular faculties.

Therefore, this study seeks to bridge this gap by examining the knowledge and practice of oral hygiene among undergraduates in the University of Benin, with the aim of examining undergraduates level of knowledge, their oral hygiene practices and the factors influencing their oral hygiene practices in the University of Benin.

Research Questions

The following research questions were raised to guide the study;

1. What is the level of knowledge about oral hygiene among undergraduates at the University of Benin?

2. What are the oral hygiene practices of undergraduates adults of the University of Benin?

3. What factors influences oral hygiene practices among undergraduate students of the University of Benin?

Purpose of the Study

This study aimed to examine the knowledge and practice of oral hygiene among undergraduates in the University of Benin. In particular, this research seeks to:

1. Examine the level of knowledge regarding oral hygiene among undergraduate students of the University of Benin.
2. Explore the oral hygiene practices of undergraduate adults of the University of Benin.
3. Identify the factors that influences the oral hygiene practices of undergraduate students the University of Benin.

Significance of the Study

The findings of this study will be beneficial to students as it will provide knowledge of the importance of maintaining proper oral hygiene and the consequences of neglecting it. By assessing their level of knowledge and practice, students will be better informed about effective oral health practices such as regular brushing, flossing, dental checkups, and healthy dietary habits. The findings of this study will enable students to understand the direct relationship between oral hygiene and overall health, including its impact on confidence, social interactions, and academic performance. The study will serve as a guide for students to adopt positive health behaviors and develop lifelong habits that prevent oral diseases such as tooth decay, gum disease, and bad breath. It will also encourage peer influence towards healthy living and may stimulate interest in oral health advocacy within the university community. Ultimately, this study will empower students with the knowledge and motivation to take responsibility for their personal health and well-being.

The study will provide school administrators important information about students' current oral health habits and emphasizes the need for more focused health education initiatives. The results can help the university develop or enhance oral health

programs, raise awareness, and perhaps incorporate instruction on oral hygiene into already-existing wellness efforts for students. Making sure students have access to services for good oral health can help them succeed academically and personally. The findings of this study will also be useful to health educators since they will highlight areas where students' oral health behaviors and knowledge are lacking. It emphasizes the necessity of providing students with practical tools to integrate oral hygiene practices into their everyday routines in addition to educating them on the value of doing so. The results of the study can be used by health educators to create more targeted, culturally appropriate, and easily accessible health education programs and materials for college students. ‘

The study will also provide important information to policymakers on the obstacles students have in practicing good oral hygiene and the variables affecting their habits. This data is crucial for developing policies that cater to the unique health requirements of college students, such as financing dental care services on campus, offering reasonably priced dental products, and encouraging preventative health programs. The study's conclusions can be used by policymakers to support structural adjustments that enhance students' health and wellbeing more broadly.

Lastly, for researchers, this study will lay the groundwork for additional research on the oral health practices of Nigerian and international university students. The research invites further investigation into the wider socio-economic, cultural, and environmental aspects impacting students' oral hygiene behaviors by addressing gaps in the literature. Building on the results of this study, future researchers might investigate the long-term effects of university health education programs on students' oral health, regional differences in oral health practices, and effective interventions.

Scope and Delimitation of the Study

The scope of the study is focused on knowledge and practice of oral hygiene among undergraduates in the. This study will be carried out using students in the university of Benin. The study is delimited to undergraduate students in the university of Benin.

Operational Definition of Terms

Oral Hygiene; This refers to students' self-reported behaviors, including their frequency and techniques of tooth brushing, flossing, and the use of other oral care products.

Knowledge of Oral Hygiene; This is the students' understanding of proper oral hygiene practices, the consequences of poor oral hygiene, and general oral health information.

Oral Hygiene Practices; This includes students' self-reported frequency of brushing, the methods used, and their engagement in additional oral care habits (e.g., flossing, professional dental visits).

Socio-Economic Factors; These are factors that are believed to influence students' ability to access oral hygiene products and services.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter will be discussed under the following subheadings:

- Concept of Oral Hygiene
- Knowledge of Oral Hygiene among Undergraduates Students
- Practice of Oral Hygiene among Undergraduates Students
- Relationship Between Knowledge and Practice of Oral Hygiene
- Factors Influencing Oral Hygiene Practices among Undergraduates
- Consequences of Poor Oral Hygiene Practices among Undergraduates
- Oral Hygiene among University Students
- Summary of Literature Reviewed

Concept of Oral Hygiene

According to the American Dental Association (2021), oral hygiene is the collection of behaviors used to keep the mouth, teeth, gums, and associated structures clean and healthy by avoiding the buildup of food particles, dental plaque, and dangerous microbes. Because the mouth is the body's entrance and affects both local and systemic health outcomes, it is an essential part of personal hygiene and general health (World Health Organization, 2022). Brushing the teeth twice a day with fluoride toothpaste, flossing every day or using other interdental cleaning techniques, using mouth rinses that contain antimicrobials, cleaning your tongue, controlling diet (particularly limiting your intake of fermentable sugars), and getting regular dental checkups are all part of good oral hygiene (Petersen & Ogawa, 2018).

Beyond preventing dental cavities and periodontal disorders, oral hygiene also promotes the best possible oral health, appearance, and general quality of life. According to Peres et al. (2019), poor oral hygiene can result in systemic health issues

like diabetes, cardiovascular disease, respiratory infections, and pregnancy outcomes in addition to local conditions like halitosis, tooth decay, and gum disease. Additionally, a complex interaction between personal knowledge and practices as well as more general socioeconomic, cultural, and environmental factors affects oral hygiene (Ling, Robbins, & Resnicow, 2020).

Oral hygiene is a component of public health strategy to promote oral health, which also includes community-level interventions like water fluoridation, dental care access, and education (WHO, 2022). Because of their increased independence, altered lifestyles, and dietary habits, university students are especially vulnerable to oral health issues if preventive measures are not taken.

Components of effective oral hygiene

Effective oral hygiene comprises a combination of daily self-care practices and periodic professional dental care aimed at maintaining the health of the teeth, gums, tongue, and other oral structures. The primary components include tooth brushing, interdental cleaning (flossing), mouth rinsing, and regular dental visits, each playing a complementary role in preventing oral diseases and promoting overall oral health (American Dental Association, 2021)

The most popular technique for removing plaque from teeth is brushing, which is also the foundation of good oral hygiene. Brushing with a soft-bristled toothbrush and fluoride toothpaste should be done at least twice a day for two minutes each, according to the American Dental Association (2021). Effective plaque removal requires using the right brushing technique, which covers all tooth surfaces, including the gum line and the backs of the teeth. In order to prevent dental caries and remineralize enamel, fluoride in toothpaste is essential (Petersen & Ogawa, 2018).

Plaque and food particles cannot be effectively removed by toothbrush bristles from

areas under the gum line and between teeth; flossing and interdental cleaning are required. Daily flossing lowers the risk of interproximal caries and periodontal disease by breaking up the bacterial biofilm in the spaces between teeth (Sälzer et al., 2019). For people with wider interdental spaces or orthodontic appliances, alternatives to dental floss like interdental brushes or water flossers may also work well.

Another way to lower oral bacteria, avoid gingivitis, and manage bad breath (halitosis) is to rinse your mouth with antimicrobial mouthwash. Mouth rinses that contain fluoride, essential oils, or chlorhexidine can aid in preventing plaque buildup and encouraging the remineralization of enamel (Marshman, 2021). However, since mechanical cleaning is still the main technique for removing plaque, mouthwash should be used in addition to, not instead of, brushing and flossing (ADA, 2021).

Frequent dental visits are essential for preventive care, early oral disease detection, and professional scaling and polishing to get rid of calculus, or hardened plaque, which is impossible to get rid of with at-home remedies alone. Although individual needs may differ depending on oral health status, dental associations generally advise seeing a dentist at least once every six months (WHO, 2022). Additionally, professional visits provide a chance for personalized oral health instruction and technique reinforcement.

Importance of oral hygiene for overall health

In addition to being essential for preserving the health of the teeth and gums, oral hygiene is also very important for general health and wellbeing. Since the mouth is the gateway to the respiratory and digestive systems, poor dental hygiene can make it easier for dangerous bacteria to enter the body, which can lead to systemic and oral illnesses (Petersen & Ogawa, 2018). In addition to lowering the risk of chronic systemic diseases like diabetes, respiratory infections, and cardiovascular disease,

maintaining proper oral hygiene helps prevent common dental issues like dental caries, gingivitis, and periodontitis (Tonetti et al., 2017).

There is increasing evidence that periodontal disease is associated with chronic non-communicable diseases, which supports the link between oral health and systemic health. According to Tonetti and Jepsen (2017), periodontitis, a severe gum infection, has been linked to elevated inflammatory markers that may exacerbate atherosclerosis and raise the risk of heart disease and stroke. There is a reciprocal relationship between oral and metabolic health, as poorly managed oral infections have also been connected to a decline in glycemic control in diabetics (Chapple & Mealey, 2015).

A healthy diet and a high standard of living also depend on good oral hygiene. Chewing ability can be hampered by pain, discomfort, or tooth loss brought on by poor oral health, which can restrict food options and possibly result in nutritional deficiencies (Sheiham & James, 2015). Additionally, poor oral hygiene can impact self-esteem, speech, and facial appearance, which can impact social interactions and psychological health (WHO, 2022). These effects may have an academic impact on undergraduates since untreated dental issues can lead to poor performance, absenteeism, and diminished concentration (Ling et al., 2020).

Additionally, pathogenic microorganisms may be stored in the oral cavity and then spread to other areas of the body. For instance, aspirating oral bacteria from people who don't practice good oral hygiene is known to increase the risk of pneumonia, particularly in susceptible groups (Scannapieco & Bush, 2014). Preventing such systemic complications requires maintaining healthy lifestyle choices and daily oral hygiene routines, such as brushing, flossing, and routine dental exams.

Knowledge of Oral Hygiene among Undergraduates Students

Oral hygiene knowledge describes a person's comprehension of the fundamentals,

procedures, and advantages of keeping the mouth, teeth, and gums healthy. It includes knowledge of appropriate oral hygiene practices and their prevalence, as well as awareness of the causes, prevention, and management of oral diseases (Petersen, 2018). Al-Omiri et al. (2021) state that understanding the reasoning behind preventive practices, such as routine tooth brushing, flossing, and dental examinations, is just as important as being able to recall facts about oral hygiene. This information serves as the cornerstone for implementing practices that can successfully stop common issues with oral health, like periodontal disease, gingivitis, and dental caries.

The three main categories of oral hygiene knowledge are preventive, behavioral, and cognitive. An individual's knowledge and comprehension of oral health concepts, such as the significance of fluoride, the role of plaque in dental disease, and the consequences of sugar consumption, are all part of the cognitive dimension (Hugoson et al., 2017). The application of this knowledge to regular oral hygiene practices, like brushing twice a day, using the right brushing techniques, and getting professional dental care when needed, is known as the behavioral dimension (Buunk-Werkhoven et al., 2017). According to Petersen and Ogawa (2018), the preventive dimension is centered on identifying early indicators of oral health issues, scheduling routine dental checkups, and adopting lifestyle choices that support oral wellness.

One important factor influencing oral health outcomes is having adequate knowledge about oral hygiene. However, studies show that knowledge alone does not ensure good oral hygiene because attitudes, socioeconomic status, and cultural beliefs can affect how knowledge is put into practice (Peker & Alkurt, 2019). However, increasing the knowledge component is still a crucial first step in encouraging people, including university freshers, to practice good oral hygiene.

A large-scale cross-sectional study comparing students with and without health-related backgrounds was carried out by Tadin et al. (2022) among 1,088 undergraduates. The results showed that students studying health-related subjects knew a lot more about dental hygiene than students studying non-health-related subjects. The fact that consistent flossing and routine dental exams were not as common among health students as their knowledge would indicate, however, indicates a disconnect between knowledge and practice. In a similar vein, Iqbal et al. (2020) evaluated medical students at a private university's oral health behaviors, attitudes, and knowledge. According to the study, the majority of participants understood the value of brushing twice a day and keeping their teeth clean, but their actions did not always reflect this understanding. Knowledge by itself does not always transfer into the best oral hygiene practices, as evidenced by the fact that many students only brushed once a day and infrequently went to the dentist for preventive examinations.

Okoroafor (2023) conducted a study at the University of Calabar in Nigeria to evaluate university students' attitudes and dentistry knowledge. The results showed that although most students were somewhat knowledgeable of the principles of oral hygiene, they were far less likely to engage in preventive measures like flossing and routine dental checkups. This implies that even with sufficient knowledge, oral hygiene behavior may be influenced by cultural factors, dental care accessibility, and cost.

Additional data from Dosumu et al. (2019) in Osun State, Nigeria, looked at the oral hygiene habits and products chosen by undergraduate students to keep their mouths clean. The study discovered that while toothbrushes and toothpaste were the most often used items, availability, price, and perceived efficacy had a significant impact

on the selection of oral hygiene goods. This highlights that regardless of undergraduates' level of knowledge, socioeconomic variables significantly influence their oral hygiene routines. A related study by Bashiru and Braimoh (2014) looked at undergraduate students in Port Harcourt and found that although roughly 60% of respondents had knowledge that brushing twice a day was advised, much less actually practiced what they knew. Furthermore, there was a lack of knowledge on other preventive measures including regular dental checkups and flossing. This demonstrates the ongoing disparity in knowledge and practice among undergraduate populations. Similarly, Madan et al. (2021) showed that only roughly 44% of undergraduate students reported brushing twice a day, despite the fact that most participants used a toothbrush and toothpaste for everyday cleaning. Additionally, the majority of students did not visit the dentist frequently for normal preventative treatment, instead seeking care only when they were in pain or uncomfortable.

A web-based cross-sectional study was carried out among King Khalid University undergraduates by Kandasamy et al. (2023). Their research showed clear gaps in knowledge about oral health. Furthermore, Arowojolu and Oladugba (2019) conducted a study to evaluate the oral hygiene awareness and habits of undergraduate students,the results demonstrated that although the majority of students understood the need of brushing their teeth to prevent dental cavities, only a minority of the percentage understood the significance of flossing or mouthwash. Preventive dental visits were rare, as the majority of respondents reported visiting the dentist only when they experienced pain. This demonstrates how students continue to practice curative rather than preventive oral health practices. Aluko et al. (2016) investigated oral health practices and knowledge among undergraduates in Lagos, Nigeria, in another study. The majority of students wash their teeth once or twice a day, according to the

study, which showed a comparatively high knowledge of tooth brushing frequency. Misconceptions were widespread, though, such as the idea that brushing your teeth firmly stops cavities. In order to dispel myths and enhance preventative measures, the authors underlined the importance of oral health education.

Rahman et al. (2015) examined oral hygiene behavior and knowledge among Malaysian undergraduate students outside of Africa. The study found that despite broad knowledge of oral hygiene, there was little actual practice related to obtaining oral health care. Routine dental examinations were rare, and a sizable percentage of students only washed their teeth once a day. According to a cross-sectional survey of Jordanian university students, dental and medical students scored noticeably higher on knowledge tests than students in other faculties (Al-Batayneh et al., 2019). However, all groups continued to exhibit low levels of preventive behaviors, such as using dental floss and scheduling routine dental checkups.

According to Singh et al. (2020), who studied oral hygiene knowledge and behaviors among Indian undergraduates, the majority of students understood the value of cleaning their teeth and using toothpaste that contains fluoride, but they did not stick to the recommended twice-daily brushing and flossing schedules. The study came to the conclusion that while knowledge levels were sufficient, they were not enough to maintain good oral hygiene. Finally, Abdellatif et al. (2018) evaluated Sudanese undergraduates' knowledge of oral hygiene. The results showed a heavy dependence on conventional cleaning techniques like chewing sticks, a lack of information about flossing, and a poor understanding of the impact that dietary choices have in oral health. Even still, the majority of students agreed that maintaining good oral hygiene is crucial for overall health, suggesting that there is room for organized health education programs.

Across these studies, a common theme emerges: undergraduate students generally possess a moderate to high level of basic oral hygiene knowledge (such as the importance of brushing and the role of toothpaste), but their preventive practices (twice-daily brushing, flossing, and regular dental visits) remain suboptimal. Knowledge-practice gaps are consistent across countries and disciplines, with health-related students demonstrating higher awareness but still failing to fully translate this into practice. Socioeconomic factors, accessibility of dental services, and lack of preventive health culture have been identified as major barriers to effective oral hygiene practices among undergraduates.

Sources of oral health information among undergraduates students

Undergraduates' knowledge and practices are greatly influenced by the sources they use to learn about oral health. These resources affect their comprehension's breadth and precision as well as their propensity to embrace and maintain good oral hygiene practices. Common sources in modern society include organized oral health campaigns, peers, medical professionals, and the media.

One of the most important sources of information about oral health for undergraduates is the mass media, which includes radio, television, newspapers, internet sites, and social media. Oral health education is now more widely available thanks to the growth of digital platforms like YouTube, Instagram, and TikTok, particularly when it comes to brief, visually appealing content (Ahuja et al., 2022). However, even though the media can quickly and widely spread information, content accuracy is not always guaranteed, especially on social media (Al-Khalifa et al., 2021).

The most trustworthy and fact-based sources of information about oral health are thought to be medical professionals, including dentists, dental hygienists, and public health educators. Frequent dental examinations clear up any misconceptions students

may have in addition to offering tailored guidance. In contrast to those who only rely on unofficial sources, research indicates that undergraduates who receive direct oral health instruction from experts exhibit superior oral hygiene practices (Abdullah et al., 2023).

Undergraduate's understanding of oral health is also greatly influenced by their peers. Peer influence can be both positive by encouraging good hygiene habits and negative, when misinformation is shared informally (Nayak et al., 2022). Peer discussions frequently take place in informal settings, which makes the information more relatable but occasionally less accurate from a scientific standpoint.

Whether run by government health agencies, non-governmental organizations (NGOs), or universities, oral health campaigns provide focused and organized health education. Seminars, workshops, free dental exams, and the distribution of educational materials are a few examples of these campaigns. When strategically designed and culturally adapted, such campaigns have been shown to significantly improve oral hygiene awareness and practices among students (Suryakanthi et al., 2023).

While undergraduates have access to multiple sources of oral health information, the reliability, accessibility, and engagement level of each source vary. Integrating multiple channels particularly professional guidance reinforced through media and campaigns appears to be the most effective strategy for improving both knowledge and practice among this population.

Global and national trends in students' oral health knowledge

Globally, oral health knowledge among students has received increasing attention in public health research, given its influence on oral hygiene behaviors and long-term oral health outcomes. There are significant knowledge gaps about the prevention of

oral diseases, the role of diet, and the significance of interdental cleaning, despite the fact that many students are aware of the fundamentals of oral hygiene practices like brushing their teeth and scheduling routine dental checkups, according to studies conducted in different regions.

Furthermore, because dental care services are more easily accessible and school-based oral health programs are more well-structured, oral health knowledge levels are typically higher in high-income nations. As an illustration of the effects of persistent public health education campaigns, over 80% of university students in Sweden showed sufficient knowledge regarding the role of fluoride in preventing dental caries (Petersen et al., 2022). Similar to this, national preventive dentistry policies in Japan raise undergraduates' awareness of oral health issues, resulting in high knowledge scores in maintaining hygiene and preventing oral diseases (Kawamura et al., 2021).

On the other hand, low and middle-income nations (LMICs) frequently deal with issues like restricted access to dental care, inadequate funding for public health, and a dearth of focused dental education. For instance, most university students in Nigeria report brushing their teeth every day, but fewer are aware of the importance of flossing or the recommended frequency of dental exams (Adebayo et al., 2020). Similar trends have been noted in other African countries, where peer pressure and life experience frequently have a greater influence on knowledge than formal education (Ndiaye et al., 2023).

Globally, the World Health Organization (WHO) highlights the significance of incorporating oral health into general health promotion, acknowledging that inequalities in oral health knowledge continue to exist even in developed nations, especially among low-income and minority student populations (WHO, 2022). In Nigeria, university-led awareness campaigns and greater exposure to oral health

information through social media have contributed to a gradual improvement in students' oral health knowledge over the past ten years, according to national oral health surveys and academic studies (Okoye et al., 2023). Nonetheless, there are still many common misconceptions regarding the origins of dental conditions and the alleged value of preventive care. By encouraging oral health education in schools and communities, initiatives like the National Oral Health Policy aim to close these gaps; however, in underserved and rural areas, implementation issues still exist.

Globally and nationally, the general trend shows that although students' basic oral health knowledge is increasing, there are still notable differences based on socioeconomic status, information availability, and the caliber of oral health education programs.

Common misconceptions and myths about oral hygiene

Many people, including university students, still have myths and misconceptions about oral hygiene despite easier access to information about oral health. These misconceptions can have a big impact on oral health behaviors and results and are frequently the result of cultural customs, false information from friends and family, and unreliable social media content (Peres et al., 2019).

The idea that harder brushing leads to cleaner teeth is one common misconception. In actuality, vigorous brushing can result in gum recession and enamel erosion, which can exacerbate tooth sensitivity and raise the risk of decay (West et al., 2021). The idea that mouthwash can take the place of brushing your teeth is another widespread misconception. Mouth rinses can help freshen breath and lower the bacterial load, but they cannot replace brushing and flossing, which remove plaque mechanically (Van der Weijden & Slot, 2020).One common misconception among students s that dental care is only required in cases of pain or obvious damage. This viewpoint downplays

the significance of preventive dental care, which can identify and address oral health problems early on before they worsen (American Dental Association, 2021). Similar to this, some people believe that sugar is the only thing that causes tooth decay, neglecting other factors like frequent snacking, poor oral hygiene, acidic drinks, and insufficient exposure to fluoride (Moynihan & Kelly, 2019).

The idea that herbal remedies or traditional chewing sticks are adequate for oral hygiene is also prevalent in many Asian and African cultures. Despite the potential antimicrobial qualities of chewing sticks, gum disease and plaque accumulation may not be sufficiently prevented by their misuse or dependence on them in the absence of contemporary hygiene practices (Adebayo et al., 2020). Another myth is that since baby teeth will eventually fall out, they don't need to be properly cared for. Early childhood caries and poor oral hygiene can have an impact on the development of permanent teeth and may last into adulthood (Folayan et al., 2021). The enduring nature of these myths emphasizes the necessity of evidence-based oral health education that confronts false information head-on. Young adults' misconceptions could be dispelled and healthier habits encouraged by incorporating oral health literacy programs into educational institutions and using social media to communicate accurate health information (Petersen et al., 2022).

Practice of Oral Hygiene among Undergraduates Students

Optimal oral hygiene practices are essential for maintaining healthy teeth, gums, and overall oral function. To lower the risk of oral diseases like dental caries and periodontal disease, evidence-based recommendations stress a combination of mechanical plaque removal, chemical plaque control, and preventive dental care (American Dental Association, 2021).

Brushing the teeth is regarded as the most important aspect of maintaining good oral

hygiene. Brushing with fluoride-containing toothpaste at least twice a day is advised by the majority of international guidelines, including those issued by the World Health Organization and the American Dental Association (Petersen et al., 2022). To effectively remove plaque without harming the gums or enamel, brushing should be done for two minutes with a soft-bristled toothbrush and gentle circular motions (West et al., 2021).

To get rid of food particles and plaque from places that toothbrush bristles can't reach, flossing or interdental cleaning should be done at least once every day. It has been demonstrated that routine interdental cleaning greatly lowers the incidence of gingivitis and interproximal caries (Sälzer et al., 2019). Water flossers or interdental brushes can be good substitutes for people who have trouble flossing.

Additional protection can be obtained by mouthwashing with antimicrobial or fluoride-containing solutions. While fluoride rinses strengthen enamel and help prevent tooth decay, especially in people who are more susceptible to cavities, antimicrobial rinses, like those that contain chlorhexidine, can help control plaque and gingivitis (Van der Weijden & Slot, 2022). Mouthwash should be used in addition to brushing and flossing, not in place of them.

For preventive care, routine dental examinations are essential. The American Dental Association (2021) recommends that individuals visit the dentist at least once every six months for professional cleaning and oral examination. These appointments enable the early identification and treatment of oral health issues before they worsen.

A balanced diet full of fruits, vegetables, and calcium is essential for maintaining oral health, as are lifestyle choices like cutting back on sugar, abstaining from tobacco and excessive alcohol, and maintaining a healthy diet (Moynihan & Kelly, 2019).

It has been demonstrated that following these suggested guidelines greatly improves

oral health outcomes, lowers treatment costs, and improves general wellbeing. Targeted oral health education programs can help university students develop lifelong healthy habits and reinforce these practices (Petersen et al., 2022). According to Bashiru and Braimoh's (2014) study of University of Port Harcourt undergraduates, the majority of participants used a toothbrush and toothpaste, but only a small percentage brushed twice a day. It was uncommon to practice preventive measures like flossing and regular dental exams. A primarily curative practice to oral health was observed in the fact that the majority of students stated that they only went to the dentist when they were in pain. Similarly, 1,088 students from both health-related and non-health faculties were evaluated by Tadin et al. (2022). The survey found that while almost everyone used a toothbrush and toothpaste, actual usage was far from optimal. Preventive dental appointments were rare, fewer students brushed twice a day, and very few practiced interdental cleaning. It's interesting to note that even more knowledgeable students in health-related subjects occasionally neglected to follow regular preventive procedures. Madan et al. (2021) surveyed undergraduate students and found that although 93% used toothbrushes and toothpaste, less than half adhered to the recommended practice of brushing twice daily. Only a small minority reported using mouthwash or floss, and just over a quarter attended routine dental visits. The findings confirmed that knowledge of correct oral hygiene did not necessarily translate into consistent practice.

Dosumu et al. (2019), a Nigerian study, looked more closely at the variables influencing oral hygiene practices among Osun State undergraduates. The study made clear that students' selection of oral hygiene supplies was impacted by factors such as price, product availability, and perceived efficacy. Even while the majority of students used a toothbrush and toothpaste every day, preventative practices like flossing and

dental checkups were noticeably lacking. This demonstrated how socioeconomic factors impact oral health practices. Similar trends were noted by Okoroafor (2023) at the University of Calabar, where most undergraduates used a toothbrush and toothpaste to clean their teeth every day, but very few brushed twice a day or practiced interdental cleaning. Preventive visits were infrequently documented, and most dental appointments were motivated by problems. The author proposed that awareness campaigns and subsidized preventative services could aid in the improvement of practices.

These patterns are reflected in international findings. For instance, university students in five ASEAN countries participated in a multi-country study conducted by Peltzer et al. (2017). The findings showed that although the majority of students washed their teeth every day, flossing was rare, brushing twice a day was irregular, and preventative dental attendance was low. Lifestyle choices like smoking and sugar intake also have an impact on oral health practices. A research conducted among college students in Ghana during the 2020–2021 school year found that while many students used toothbrushes, very few of them brushed twice a day or went to the dentist for preventive treatment. Numerous students stated that they only went to the dentist for discomfort or bleeding gums, which supports the trend toward symptomatic rather than preventive care. A survey conducted by Gardner et al. (2023) among first-year freshmen at several universities revealed a lack of compliance with preventive oral hygiene practices. The survey found that flossing was uncommon, regular dental examinations were mostly lacking, and many students did not brush twice a day. The results emphasized that the first few years of college are a critical time to establish better oral hygiene practices.

These trends have been validated by other research from Asia and the Middle East.

For instance, Singh et al. (2020) found that although students in India understood the value of brushing, the majority only brushed once a day and hardly ever used dental floss. Despite reporting higher levels of knowledge, dental and medical students' oral hygiene habits particularly flossing and dental visits were not appreciably superior to those of students from other faculties, according to research conducted in Jordan by Al-Batayneh et al. (2019). According to Abdellatif et al. (2018), preventive measures like flossing and regular dental checkups were incredibly uncommon in Sudan, where a large number of college students depended on conventional cleaning tools like chewing sticks. Although the majority agreed that maintaining good dental hygiene was important, their real actions were influenced by cultural and economic factors. Lastly, a recent study conducted in Pakistan by Ali et al. (2024) showed that oral hygiene behaviors are also influenced by psychological factors. According to the study, students who had high levels of stress reported less consistent oral hygiene practices, whereas those who had higher levels of self-efficacy were more likely to continue brushing and flossing on a regular basis.

Influence of diet and lifestyle on oral health behavior

Dietary and lifestyle decisions have a significant impact on the habits and results of oral health. While lifestyle choices can either support or undermine oral health, nutritional intake has a direct impact on the risk of dental caries, periodontal disease, and erosion (Moynihan & Kelly, 2019). Strong teeth and healthy gums are developed and maintained with the help of a balanced diet full of vital nutrients like calcium, phosphorus, and vitamins A, C, and D (Touger-Decker & van Loveren, 2018). On the other hand, because oral bacteria break down free sugars and fermentable carbohydrates to create acids that demineralize tooth enamel, diets high in these substances are closely linked to dental caries (Sheiham & James, 2015).

Acid exposure in the oral cavity is prolonged by frequent snacking on sugary or acidic foods and drinks, such as soda, fruit juices, and confections. This accelerates enamel demineralization and raises the risk of caries (Moynihan, 2020). The timing of sugar intake is also important; it has been demonstrated that eating sugar in between meals is worse for oral health than eating it during meals because it reduces salivary flow and buffering (Gibson & Boyd, 2020). Oral health is greatly impacted by lifestyle choices such as drinking alcohol, smoking cigarettes, and maintaining good dental hygiene. Because it weakens the immune system and decreases blood flow to the oral tissues, tobacco use is a known risk factor for periodontal disease, tooth loss, and oral cancer (Warnakulasuriya, 2020). The risk of oral mucosal lesions and cancers of the oral cavity and oropharynx is increased by excessive alcohol use, especially when coupled with poor oral hygiene (Petti et al., 2018).

Individuals who are more health literate and aware of the connection between diet, lifestyle, and oral health are more likely to adopt healthy lifestyle practices, such as brushing, flossing, and visiting the dentist on a regular basis (Petersen et al., 2022). By boosting immunity and lowering the risk of systemic inflammation, which can worsen periodontal disease, physical activity, getting enough sleep, and managing stress also have an indirect positive impact on oral health (Kumar et al., 2017). University students' oral health habits can change as a result of changing lifestyles, becoming more independent, and being exposed to a variety of foods. These modifications may result in a rise in sugary snack consumption, sporadic dental care, and a disregard for preventive measures if targeted oral health promotion is not implemented (Petersen & Kwan et al., 2020). There is a persistent discrepancy between undergraduates' knowledge and practice of oral hygiene, despite the fact that many of them have a reasonable awareness of its importance. Research on oral health

has extensively documented this disparity, which is frequently ascribed to elements like individual attitudes, socioeconomic obstacles, and behavioral patterns (Petersen & Kwan, 2019). According to Al-Omiri et al. (2020), students may be aware that brushing twice a day is advised, but they may choose not to do so because of time constraints, forgetfulness, or a lack of motivation.

Less than half of Moroccan university students went to the dentist on a regular basis, according to a study by Chala et al. (2018), despite their high awareness of the importance of preventive dental care. This shows that knowledge is not enough to guarantee compliance. Likewise, Adeniyi et al. (2020) found that although more than 80% of Nigerian undergraduates agreed that flossing was important, fewer than 20% actually did it on a regular basis. This implies that knowledge-driven intentions can be overridden by obstacles like price, product availability, and deeply rooted habits.

According to behavioral science literature, attitudes, perceived vulnerability to disease, and supportive environments all play a mediating role in the relationship between health-related knowledge and behavior (Ajzen, 2020). This indicates that even with sufficient knowledge, students are less likely to practice consistently if they do not view oral diseases as an imminent threat or if they do not have easy access to dental care.

Relationship Between Knowledge and Practice of Oral Hygiene

Oral hygiene practices are greatly influenced by knowledge because adopting healthy habits is frequently based on an understanding of the causes, prevention, and effects of oral diseases. Individuals who have a better knowledge of health risks and preventive measures are more likely to take actions that lower those risks, according to the Health Belief Model (Rosenstock et al., 1988; Champion & Skinner, 2008). When it comes to oral hygiene, this means that students are more likely to brush, floss,

and go to regular dental checkups if they understand how plaque contributes to dental caries or how gum disease is linked to systemic health problems (Amoateng et al., 2020).

Knowledge has a direct impact on practice, according to empirical evidence. For instance, Yadav et al. (2021) discovered that both dental and non-dental students in India who scored higher on oral health knowledge tests also exhibited significantly better oral hygiene practices, such as brushing and flossing their teeth more frequently. Similarly, Adebayo et al. (2019) found that undergraduates in Nigeria who were aware of the WHO's recommendation to brush twice a day were more likely to follow it than those who were not.

Knowledge and practice do not always have a direct or automatic relationship, though. Although knowledge has the power to influence behavior, it needs to be combined with supportive surroundings, positive attitudes, and consistent reinforcement of sustainable practices (Ajzen, 2020). For instance, students may disregard flossing despite knowing how important it is because they feel it is inconvenient or they are not proficient at it (Sujatha et al., 2017). Thus, although knowledge is a necessary precondition for maintaining proper oral hygiene, it works best when paired with behavioral interventions, resource accessibility, and persistent health promotion initiatives.

Numerous environmental, social, and personal factors influence the discrepancy between oral health knowledge and actual oral hygiene practices. Accurate knowledge is necessary for healthy behavior, but it does not guarantee consistent practice. Attitude and motivational factors are important determinants of this gap. People may be aware of the significance of flossing or brushing twice a day, but they may not take action because they believe they are not at risk for dental issues or because there are

no immediate health consequences (Ajzen, 2020; Al-Ansari, 2022).

The knowledge-practice gap is also greatly influenced by behavioral patterns and deeply rooted routines. Even when people are aware of the advantages of new oral hygiene habits, they may find it difficult to adopt them because these habits tend to become automatic over time (Verplanken & Orbell, 2022). For instance, despite being knowledgeable of the preventive benefits of brushing twice a day, a student used to brushing once a day might find it challenging to make the switch (Adebayo et al., 2019). Another important consideration is resource accessibility. Lack of access to inexpensive dental care, fluoride toothpaste, or floss can make it difficult to put knowledge into practice, even when one is well-informed. This is especially true in low- and middle-income environments (WHO, 2022; Peltzer & Pengpid, 2018). Similarly, students may neglect their oral hygiene routines due to time constraints brought on by personal obligations or academic workloads (Amoateng et al., 2020). Misconceptions and cultural beliefs may make the gap even worse. Despite educational campaigns, myths like "tooth loss is inevitable with age" and "hard brushing cleans teeth better" still exist in some contexts, influencing behavior that is at odds with evidence-based practices (Ali et al., 2021). Furthermore, depending on group norms, peer and social influences may promote or discourage good oral hygiene practices (Bandura, 2004). Psychological issues like dental anxiety, low self-efficacy, or forgetfulness may make it less likely that someone will act on their knowledge. According to studies, people are less likely to practice oral hygiene on a regular basis if they don't believe they can do it correctly (Sujatha et al., 2017).

Numerous studies have shown that there is a persistent knowledge–practice gap, with high levels of oral health knowledge not always translating into proper oral hygiene practices. In a study conducted among university students in Nigeria, for instance,

Adebayo et al. (2019) discovered that while 78% of participants were aware that brushing should be done twice a day, only 46% regularly followed this recommendation. Time constraints, forgetfulness, and a lack of motivation were blamed for this discrepancy.

Similar to this, Peltzer and Pengpid (2018) carried out a multi-country study spanning 26 low-, middle-, and high-income countries, including Nigeria, and found that regular use of fluoride toothpaste was significantly lower (about 50%) even in countries with high knowledge (above 70%) regarding the role of fluoride in preventing dental caries. The authors pointed out that cultural beliefs and socioeconomic barriers contributed to this disparity. While more than 80% of participants in a study conducted among Ghanaian undergraduates knew that flossing prevents gum disease, less than 10% said they regularly used dental floss, according to Amoateng et al. (2020). The researchers came to the conclusion that without enabling resources, habit formation, and positive attitudes toward preventive care, knowledge alone is insufficient.

A similar pattern was noted by Al-Ansari (2022) among Saudi university students: only 28% went to the dentist on a regular basis, even though 92% of them understood the value of getting checkups every six months. Fear of dental procedures, financial worries, and the notion that visits are only required when symptoms appear were among the reasons cited. Furthermore, Sujatha et al. (2017) in Karnataka, India, discovered that while the majority of participants were able to accurately recognize the symptoms of gum disease, very few of them used preventive measures like cleaning their tongues or avoiding sugary snacks. This serves as further evidence that comprehensive oral hygiene behavior is not always correlated with knowledge. Together, these studies highlight how behavioral patterns, resource constraints,

attitudinal barriers, and sociocultural influences frequently erode knowledge, despite the fact that knowledge is a fundamental component of healthy practices.

Factors Influencing Oral Hygiene Practices among Undergraduates

Personal factors such as knowledge level, attitudes, and self-efficacy play a significant role in shaping oral hygiene behaviors. The degree to which people comprehend oral health concepts, such as the causes of dental caries, the function of fluoride, and the significance of consistent brushing and flossing, is referred to as their knowledge level. Improved hygiene practices are typically linked to greater oral health knowledge, though this relationship is not always linear. Peltzer and Pengpid (2018), for instance, found that although university students in a number of nations showed a good understanding of the recommended brushing frequency, many of them nevertheless did not consistently adhere to these recommendations, indicating that knowledge by itself does not ensure optimal behavior.

The likelihood of following recommended practices is also influenced by attitudes, which are defined as the beliefs and feelings regarding oral health. More consistent preventive behaviors are associated with positive attitudes, such as the belief that oral health is essential to overall well-being (Amoateng et al., 2020). Negative attitudes, on the other hand, like the belief that dental visits are unnecessary unless there is pain, frequently result in the disregard for preventive measures (Al-Ansari, 2022). These attitudes can be shaped by cultural norms and individual priorities, which can occasionally reinforce unhealthy behaviors even in the face of sufficient knowledge. Another important factor influencing oral hygiene practices is self-efficacy, or the conviction that one can carry out and maintain a behavior. People with high self-efficacy are more likely to start and continue health-promoting behaviors, according to Bandura's social cognitive theory (Bandura, 1997). Dental students who had high

confidence in their ability to maintain oral hygiene were much more likely to brush twice a day, floss frequently, and go to their scheduled dental checkups, according to oral health research by Mohamed et al. (2021). On the other hand, even when people are aware of the significance of challenging preventive behaviors, low self-efficacy can lead to procrastination, irregular habits, and avoidance of them.

Individuals' oral hygiene habits are also greatly influenced by socioeconomic factors, including access to dental care, affordability of oral care products, and income. The ability to buy necessary oral hygiene products like fluoride toothpaste, toothbrushes, floss, and mouthwash is frequently influenced by one's income level. Oral health expenses may be subordinated in low-income populations to competing priorities like food, housing, and transportation (Peres et al., 2019). In keeping with the financial limitations on preventive care, Liu et al. (2021) discovered that households in the lowest income quartile were substantially less likely to use dental floss or replace toothbrushes on a regular basis.

Many low and middle-income nations still struggle with the affordability of dental care products, as branded goods can be expensive in comparison to average incomes. Although generic substitutes might be available, their use may be further restricted by ignorance of their advantages or quality (Petersen & Ogawa, 2018). Furthermore, when oral care products are imported, supply chain problems and fluctuating currency values can make affordability even more difficult, which may result in less frequent use or a dependence on less efficient traditional cleaning techniques. Another important socioeconomic determinant is access to dental care. The availability of professional preventive or curative care depends on a number of factors, including geographic location, healthcare infrastructure, and service costs. According to the WHO (2022), there are few dental clinics in many underserved urban and rural areas,

and the services that are available are frequently costly, causing people to put off treatment until their issues worsen. The lack of reasonably priced insurance coverage can discourage regular dental checkups, even in cities with more providers (Naidoo & Myburgh, 2020).

These socioeconomic barriers work in a cycle whereby low income limits access to oral care products, low affordability discourages preventive care, and lack of dental care permits minor problems to develop into serious oral diseases. Figueiredo et al. (2017) contend that policies that address the structural economic conditions that influence people's ability to maintain oral hygiene in addition to behavioral and educational factors are necessary to address oral health disparities.

Oral hygiene habits and attitudes toward oral health are greatly influenced by cultural factors, such as customs, beliefs, and peer pressure. Traditional oral hygiene techniques, like using chewing sticks, charcoal, herbal pastes, or salt water rinses, are ingrained in the cultural heritage of many societies. While some of these techniques, like chewing sticks with antimicrobial qualities, have shown benefits for oral health, others might be less successful or even dangerous if used improperly (Elisha et al., 2021). According to Riley et al. (2020), the continued use of these practices in rural Asian and African communities frequently reflects both cultural identity and economic necessity because contemporary oral care products may be more difficult to obtain or less expensive.

Dental care and preventive practices can also be influenced by cultural beliefs regarding oral health. In certain cultures, losing teeth as one ages is seen as a normal and unavoidable occurrence rather than a medical condition that can be avoided (Petersen & Ogawa, 2018). This notion has the potential to decrease younger populations' motivation for preventive measures, thus perpetuating generational

cycles of poor oral health. Additionally, misconceptions are common in many cultural contexts and lead to treatment delays, such as the belief that dental visits are only required when pain is present (Kassebaum et al., 2017). Another significant cultural element is peer pressure, particularly for younger groups like college students. Social circles frequently influence beliefs about appearance and personal hygiene, including practices related to oral health. According to Harris et al. (2021), people are more likely to adopt healthy habits when they see their peers doing so, and peer approval or disapproval has a significant impact on adherence to advised oral hygiene practices. On the other hand, people might not be very motivated to change their oral hygiene habits in groups where it is accepted as normal. The interplay among customs, cultural values, and peer pressure emphasizes how crucial it is to promote oral health in a way that is sensitive to cultural differences. Sustainable behavior change is more likely to be achieved by interventions that address misconceptions, incorporate positive peer influence, and respect and incorporate beneficial traditional practices (WHO, 2022).

Students' oral health practices and behaviors are also greatly influenced by institutional factors, especially the availability of oral health programs and facilities on campus. Students are more likely to develop good oral hygiene habits in university settings that incorporate easily accessible dental services, oral health education initiatives, and preventive care programs (Peltzer & Pengpid, 2017). These programs can include free oral care kits, interactive workshops on proper brushing and flossing techniques, organized oral health awareness weeks, and routine dental examinations at on-campus clinics.

By addressing concerns of accessibility, affordability, and scheduling convenience, on-campus dental clinics greatly lower barriers to care. Adebayo et al. (2020) found

that students at universities with operational dental clinics report higher adherence to recommended oral hygiene practices and are more likely to receive preventive care. This is in line with the findings of Saied-Moallemi et al. (2018), who noted that institutional support systems, like free oral health screenings and subsidized dental care, promote early identification and prompt treatment of oral health issues, lowering the risk of long-term complications.

The gap between knowledge and practice can also be closed with the support of institutional policies that give oral health education top priority in campus health programs. For instance, incorporating dental health promotion into more comprehensive student wellness initiatives guarantees that dental hygiene is viewed as a component of overall health rather than a separate issue (WHO, 2022). However, especially for students with limited financial resources, the lack of such programs or insufficient infrastructure can result in late presentation of oral diseases, self-treatment, and neglect of preventive care (Petersen & Ogawa, 2018).

Consequences of Poor Oral Hygiene Practices

Dental conditions like periodontitis, gingivitis, and dental caries are among the most common oral health issues in the world and have a major impact on people's functionality, well-being, and quality of life. According to Pitts et al. (2017), dental caries is a complex, infectious disease that is typified by the demineralization of tooth enamel and dentin as a result of acids generated by bacteria that break down fermentable carbohydrates. Caries spreads to deeper tooth structures if treatment is not received, which can result in pain, infection, and even tooth loss (Selwitz et al., 2007). It is the most prevalent chronic illness in the world, impacting people of all ages and posing a serious threat to public health (Peres et al., 2019).

The first and reversible stage of periodontal disease is gingivitis, which is

characterized by inflammation of the gingival tissues mainly brought on by the buildup of dental plaque (Chapple et al., 2015). Redness, swelling, and bleeding upon probing are its clinical characteristics; however, there is no loss of attachment or bone destruction. Gingivitis itself can be reversed with good oral hygiene, but if left untreated, chronic inflammation can lead to periodontitis (Lang et al., 2009). The advanced stage of periodontal disease, known as periodontitis, causes irreversible harm to the tissues that support teeth, such as the periodontal ligament and alveolar bone loss, which eventually results in tooth loss and mobility (Tonetti et al., 2017). Due to the systemic spread of pathogenic bacteria and inflammatory mediators, the condition has been associated with systemic diseases like diabetes mellitus, cardiovascular disorders, and unfavorable pregnancy outcomes (Sanz et al., 2020). Inadequate oral health education, a high intake of sugar-rich foods, and restricted access to preventive and restorative dental care in many low- and middle-income nations all contribute to the burden of these dental diseases (Petersen et al., 2020). With growing evidence connecting oral infections to a number of systemic diseases, poor oral hygiene has a significant impact on overall health in addition to predisposing people to dental diseases.

It is now known that systemic inflammation, which contributes to the pathophysiology of a number of non-communicable diseases, may be exacerbated by chronic oral diseases, especially periodontitis (Tonetti & Jepsen, 2013). Pathogenic bacteria and inflammatory mediators are stored in the oral cavity and can enter the bloodstream through ulcerated periodontal pockets, resulting in low-grade systemic inflammation and bacteremia (Kinane et al., 2017).

The link between periodontal disease and cardiovascular disease (CVD) is among the most well-established. According to studies, atherosclerosis, endothelial dysfunction,

and an elevated risk of myocardial infarction and stroke may all be exacerbated by the chronic inflammation caused by periodontitis (Sanz et al., 2020). Likewise, there is a well-established reciprocal relationship between diabetes mellitus and periodontal disease, with hyperglycemia exacerbating periodontal inflammation and periodontitis impairing glycemic control (Preshaw et al., 2012).

Due to the possible systemic spread of oral pathogens and inflammatory cytokines, poor oral hygiene and the resulting dental infections have also been connected to unfavorable pregnancy outcomes, including preterm birth, low birth weight, and preeclampsia (Ide & Papapanou, 2013). Additionally, because oral bacteria can aspirate into the lower respiratory tract, oral infections can worsen respiratory conditions like aspiration pneumonia and chronic obstructive pulmonary disease (COPD) (Scannapieco et al., 2003). The significance of oral hygiene as a component of holistic health is further highlighted by emerging evidence that points to potential links between poor oral health and ailments like rheumatoid arthritis, Alzheimer's disease, and some types of cancer (Dominy et al., 2019; Michaud et al., 2016). Beyond just affecting one's physical health, poor dental hygiene can have a major negative influence on one's sense of self and social interaction. Particularly in peer and social settings, oral health issues such as dental caries, gum disease, tooth discoloration, visible enamel damage, and halitosis (bad breath) can cause embarrassment and self-consciousness (Singer et al., 2022). According to research, people with these oral health conditions might be reluctant to laugh aloud, smile, or speak with confidence, which can subtly undermine their sense of self-worth (Löwstedt et al., 2021). These effects can be even more noticeable in modern university settings where social bonding and appearance are important factors. Those with poor oral health reported significantly lower scores on self-esteem scales,

decreased participation in social activities, and higher anxiety in peer interactions, according to a recent cross-sectional study conducted among undergraduates in Europe (Johansson et al., 2023). This implies that young adults' confidence and sense of belonging in social and academic settings can be directly impacted by their dental health.

Furthermore, when oral conditions make it difficult to perform daily tasks like eating, speaking, and interacting with others, oral health-related quality of life (OHRQoL), which includes emotional, functional, and social domains, is severely harmed. According to a systematic review of young adult populations, oral health issues were consistently associated with lower OHRQoL, especially when it came to social functioning and emotional well-being (Smith & Nguyen, 2022). In academic or professional settings, where first impressions are crucial, poor oral hygiene or foul breath can unintentionally impact a person's reputation among peers, instructors, or employers, which can further undermine confidence and possibly limit opportunities (Martínez-Zapata et al., 2022).

In addition to endangering one's health and social well-being, poor dental hygiene has quantifiable effects on one's academic achievement and financial security. Oral infections, dental pain, and associated discomforts can impair focus, lower student participation in class, and raise absenteeism (Benjamin et al., 2021). For example, untreated periodontal disease or dental caries can cause frequent headaches, trouble eating, and sleep disturbances, all of which can affect one's ability to learn and think clearly (Jackson et al., 2022). According to a Brazilian university study, students who frequently experience oral pain report poorer academic performance and less engagement in lectures as a result of being distracted and worn out (Silva et al., 2022). Missed tests or deadlines when oral health issues necessitate urgent dental care are

also examples of the academic consequences. Students with long-term oral health problems are up to twice as likely as their peers to miss more than two days of class each semester, which has a direct effect on their academic performance (Jackson et al., 2022).

Poor dental hygiene can have both direct and indirect financial consequences. While indirect costs result from lost productivity, fewer work study hours, and possible long-term effects on employability, direct costs include the cost of dental procedures, prescription drugs, and follow-up care (Petersen & Baehni, 2022). Time off work due to oral health issues can put a strain on finances and limit a student's ability to meet basic needs if they depend on part-time employment to pay for their education. The total economic cost of oral diseases is substantial on a larger scale. According to the World Health Organization, oral diseases cause billions of dollars' worth of lost productivity worldwide each year. Young adults, particularly students, are particularly vulnerable because they have less access to preventive care (WHO, 2022). This indicates that poor oral hygiene contributes to broader societal economic losses in addition to affecting an individual's earning potential.

Oral Hygiene among University Students

Studies conducted among university students in various countries has consistently demonstrated a notable gap between oral health knowledge and actual practices. For example, studies in Nigeria have reported that most undergraduates are knowledgeable that teeth should be brushed at least twice daily using fluoride toothpaste, and that flossing is important for interdental cleaning. However, the majority brush only once a day, rarely floss, and often visit a dentist only when experiencing pain rather than for routine check-ups (Okoh & Enabulele, 2019; Okeigbemen et al., 2020). These studies also revealed that cost, limited access to

dental facilities, and busy academic schedules serve as barriers to regular oral care. Similar findings have emerged from research in the Middle East. For instance, Al-Omari and Hamasha (2021) found that Saudi Arabian university students both in health-related and non-health fields demonstrated high awareness of proper brushing techniques and the benefits of fluoride toothpaste. Nonetheless, less than one-third reported using dental floss regularly, and preventive dental visits were uncommon. The authors concluded that while knowledge was relatively high, translation into consistent preventive practice was lacking, partly due to cultural habits and perceived inconvenience.

In Southeast Asia, a multi-country survey involving university students in Indonesia, Malaysia, and Thailand found that while over 80% of respondents reported brushing at least once daily, only a small proportion brushed twice a day or more, and fewer than 25% had undergone a dental check-up in the past six months (Nguyen et al., 2018). Gender differences were also evident, with female students typically reporting better oral hygiene practices than males. Studies in South Asia mirror these findings. Research among Bangladeshi undergraduates by Rahman et al. (2022) reported that although 90% of participants knew that sugary diets contribute to tooth decay, only about half actively limited their intake of sweets. Moreover, flossing was rarely practiced, and most students perceived dental visits as necessary only for pain relief rather than prevention. European evidence also supports this pattern. A study among Polish and Turkish undergraduates revealed that students enrolled in dental and health sciences programs had significantly higher oral health knowledge and slightly better practices than their non-health peers, but even in this group, preventive behaviors such as flossing and regular check-ups were inconsistent (Nowak et al., 2017).

Summary of Literature Reviewed

A complex interaction between knowledge and practices as well as influencing factors is revealed by the literature on oral hygiene among university students. National and international research continuously shows that although university students frequently have moderate to high levels of knowledge regarding recommended oral hygiene practices, there is a sizable discrepancy between knowledge and practices. Despite educational exposure, common misconceptions continue to exist, such as the idea that brushing once a day is adequate or that mouthwash can replace toothbrushing.

Public health campaigns, peers, health professionals, and the media are some of the many sources that raise awareness of oral health, with social media playing a bigger role in influencing attitudes and behaviors. Information from unofficial sources, however, may not always be accurate and may even serve to perpetuate myths rather than dispel them.

According to empirical data, individual characteristics like self-efficacy, attitudes toward oral hygiene, and the perceived value of dental visits affect how knowledge is applied in day-to-day activities. Along with unequal access to dental facilities, socioeconomic constraints specifically, income and the cost of oral care products remain major obstacles (Rahman et al., 2022). Oral hygiene behaviors are also influenced by peer pressure, cultural beliefs, and customs, some of which run counter to evidence-based guidelines. When available, institutional support like on-campus dental health programs has been demonstrated to raise levels of practice and knowledge.

Dental conditions like caries, gingivitis, and periodontitis are among the many negative effects of poor oral hygiene, as are systemic health issues like diabetes and cardiovascular disease. Beyond physical health, there are quantifiable academic and

economic effects from missed school days and treatment expenses, as well as psychosocial effects like low self-esteem and poor social interaction.

CHAPTER THREE
RESEARCH METHODOLOGY

This chapter describes the research methodology that was used in the study. This is done under the following subheadings;

- Research Design
- Population of the Study
- Sample and Sampling Technique
- Research Instrument
- Validity of the Instrument
- Reliability of the Instrument
- Method of Data Collection
- Method of Data Analysis

Research Design

In this research study, a survey research design was employed. Surveys are used as an instrument by researchers to provide in-depth knowledge about an individual or group perspectives that is in relation to a particular concept or topic of interest. Through this design, the researcher was able to conduct a systematic examination of the respondent's knowledge and practice of oral hygiene among undergraduates in the University of Benin.

Population of the Study

The population for this research study consisted of forty thousand, three hundred and eighteen (40318) undergraduate students in the fifteen faculties of the University of Benin. The breakdown of the population is given below;

Table 1: Distribution of Population

S/N	Faculities	Number of Students
1.	Agriculture	1337
2.	Arts	5456
3.	Basic Medical Sciences	4161
4.	Dentistry	125
5.	Education	5517
6.	Engineering	5388
7.	Environmental Sciences	1150
8.	Law	992
9.	Life Sciences	4583
10.	Management Sciences	2927
11.	Medicine	1266
12.	Pharmacy	1225
13.	Physical Sciences	2911
14.	Social Sciences	3138
15.	Veterinary Medicine	142
	Total	**40,318**

(Students Affairs Division, 2025)

Sample and Sampling Technique

The sample for this research study consisted of two hundred and fifty (308) undergraduate students across 100 level to Six hundred level who were purposively selected from six (6) faculties in the University of Benin.

Table 2: Sample Distribution of Respondents

S/N	Faculties	Number of students	Number of Sample students
1.	Agriculture	799	24
2.	Environmental Sciences	1150	35
3.	Law	992	30
4.	Pharmacy	1225	37
5.	Management Sciences	2927	88
6.	Social Sciences	3138	94
	Total	**10,231**	**308**

(Students Affairs Division, 2025)

Research Instrument

For the purpose of collecting acceptable and reliable information, the use of a questionnaire was adopted as an instrument for data collection. The questionnaire consisted of four sections A, B, C, and D. The different sections had a number of questions to help gather information on the respondents, their level of knowledge about oral hygiene, their oral hygiene practices and factors influencing their oral hygiene practices.

Validity of the Instrument

The validity of an instrument is the extent to which an instrument measures what it is supposed to measure. In order to ascertain the validity of the instrument, the questionnaire was given to the supervisor and two other experts in the Department of Health, Safety, and Environmental Education, Faculty of Education. This step ensured the validity of the instrument for data collection, and the feedback and critiques provided by the experts were carefully considered and incorporated.

Reliability of the Instrument

The reliability of an instrument is the consistency with which an instrument measures what it set out to measure. The test-retest reliability method was employed to determine the reliability of the instrument. The questionnaire was administered to the respondents on two separate occasions, with a time interval of two weeks. The first and second administration was analysed using Pearson Product Moment Correlation Coefficient (PPMC).

Method of data collection

The researcher personally administered the instrument to the respondents. The questionnaires that were completed by the respondents were retrieved personally by the researcher immediately after completion.

Method of Data Analysis

Following the collection and appropriate organization of valid questionnaires, the gathered data underwent analysis using frequency counts, mean calculations, and simple percentage.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS, AND INTERPRETATION

This chapter presents the findings, analysis, and interpretation of the data obtained from respondents in order to answer the research questions that guided this study. A questionnaire consisting of thirty (30) items was generated and distributed to 308 respondents who were chosen from among the undergraduates students in the University of Benin in Edo State. The study was guided by three (3) research questions. The following tables provide a detailed presentation and analysis of the respondents' data.

Question 1: What is the level of knowledge about oral hygiene among undergraduates at the University of Benin?

Table 3: Level of knowledge about oral hygiene among the respondents

S/N	Level of knowledge	Frequency	Percentage
1.	Low Knowledge	59	19.2%
2.	High Knowledge	249	80.8%
	TOTAL	**308**	**100.00%**

Source: Researcher's fieldwork, 2025 **Decision 0-3 low, 4-5 Moderate, 6-10 High**

Table 4.1 the level of knowledge about oral hygiene among the respondents. From the table it can be seen that 59 (19.2%) of the respondents possess low knowledge on about oral hygiene while 249 (80.8%) of the respondents possess high knowledge about oral hygiene. Therefore, it can be inferred that the level of knowledge about oral hygiene among the respondents is high.

Question 2: What are the oral hygiene practices of undergraduates adults of the University of Benin?

Table 4: Oral hygiene practices among the respondents

S/N	ITEMS	Always (%)	Often (%)	Sometimes (%)	Very Rare (%)	Never (%)	Total
1	How often do you brush your teeth	98 (31.8%)	145 (47.1%)	46 (14.9%)	18 (5.8%)	1 (0.3%)	308 (100%)
2	Do you use a toothbrush when brushing	195 (63.3%)	27 (8.8%)	43 (14%)	38 (12.3%)	5 (1.6%)	308 (100%)
3	How often do you replace your toothbrush	56 (16.2%)	110 (35.7%)	79 (25.6%)	47 (15.3%)	16 (5.2%)	308 (100%)
4	Do you use dental floss to clean between your teeth	65 (21.1%)	78 (25.3%)	65 (21.1%)	29 (9.4%)	71 (23.1%)	308 (100%)
5	How often do you visit a dentist for check-up	38 (12.3%)	75 (24.4%)	69 (22.4%)	33 (10.7%)	93 (30.2%)	308 (100%)
6	Do you rinse your mouth after meals	150 (48.7%)	95 (30.8%)	59 (19.2%)	4 (1.3%)	0 (0%)	308 (100%)
7	I seek professional dental care whenever I experience tooth or gum problems.	87 (28.2%)	75 (25.4%)	24 (7.48%)	93 (30.2%)	29 (9.4%)	308 (100%)
8	I brush my tongue while brushing my teeth	210 (68.2%)	69 (22.4%)	5 (1.6%)	15 (4.9%)	9 (2.9%)	308 (100%)
9	How often do you consume sugary foods or drinks (soda, sweets, cakes, etc.)	153 (49.7%)	63 (20.5%)	25 (8.1%)	40 (13%)	27 (8.8%)	308 (100%)

10	I smoke and use tobacco-related products	38 (12.3%)	89 (28.9%)	17 (5.5%)	16 (5.2%)	148 (48.1%)	308 (100%)

Source: Researcher's fieldwork, 2025

Table 4.2 depicts the respondents oral hygiene practices. In item one, majority of respondents (31.8% “Always” and 47.1% “Often”) brush their teeth regularly, indicating that 78.9% of students maintain good brushing habits, while only 0.3% reported “Never.” Item 2 showed that most respondents (63.3%) “Always” use a toothbrush, and 8.8% “Often,” showing a strong preference for toothbrush use (72.1%), while only 1.6% reported “Never.”

In item 3 on how often they replaced their toothbrush, only 16.2% “Always” , 35.7% “Often” replace their toothbrush regularly, whereas 25.6% “Sometimes” and 15.3% “Very Rarely” do so. This indicates that about half (51.9%) replace their toothbrush as recommended. In item 4 on the use of dental floss to clean the teeth, a low percentage (21.1% “Always” and 25.3% “Often”) reported using dental floss, while 23.1% “Never” used it, showing that flossing is not a common practice among the students.

In item 5 on how often the visited a dentist for checkup, only 12.3% “Always” and 24.4% “Often” visit a dentist for check-ups, while 30.2% “Never” do. This showed poor dental visitation habits. In item 6 on if they rinse their mouth after meals, majority (48.7% “Always” and 30.8% “Often”) rinse their mouth after meals, showing that 79.5% observe this hygiene practice regularly. In item 7, on seeking professional dental care, about 28.2% “Always” and 25.4% “Often” seek professional dental care when facing oral problems, but 30.2% “Very Rarely” and 9.4% “Never” do, implying irregular health-seeking behavior.

Item 8, on if they brush their tongue while brushing their teeth, a high proportion (68.2% “Always” and 22.4% “Often”) brush their tongue, which shows that over 90%

have good tongue-cleaning habits. In item 9 on how often they consume sugary foods, nearly half (49.7% "Always") consume sugary foods and drinks, while only 8.8% "Never" do, indicating high sugar consumption that could negatively affect oral health. And in item 10 on the use of tobacco products, majority (48.1%) "Never" smoke or use tobacco, though 28.9% "Often" and 12.3% "Always" do, indicating that a small but notable group engages in risky behavior affecting oral health.

Therefore, from table 4.2 above it can be inferred that undergraduate students of the University of Benin generally demonstrate a moderate to good level of oral hygiene practice, particularly in basic routines such as regular tooth brushing, tongue cleaning, and rinsing after meals. However, a considerable number of students either rarely or never engaged in these practices.

Question 3: What factors influences oral hygiene practices among undergraduate students of the University of Benin?

Table 5: Factors influencing oral hygiene practices among the respondents

S/N	ITEMS	MEAN	S.D	DECISION
1	My friends influence how often I brush my teeth and/or visit the dentist.	2.48	0.86	DISAGREED
2	The high cost of toothpaste, floss, and/or mouthwash prevents me from maintaining good oral hygiene.	2.95	0.88	AGREED
3	Limited access to water and/or bathroom facilities affects my ability to practice oral hygiene consistently.	2.60	0.91	AGREED
4	My academic workload and/or busy schedule make it difficult to maintain proper oral hygiene.	3.15	0.83	AGREED
5	The availability of dental services within or around the campus influences how I care for my teeth.	2.85	0.80	AGREED
6	Advertisements and media campaigns about oral care products influence my oral hygiene practices.	2.70	0.78	AGREED
7	My cultural or traditional beliefs (e.g., using chewing sticks, herbal remedies) affect how I practice oral hygiene.	2.40	0.92	DISAGREED
8	My personal desire for good appearance, fresh breath, and/or confidence motivates me to maintain oral hygiene.	3.60	0.66	AGREED

9	Fear of pain and/or discomfort at the dentist prevents me from going for regular dental checkups.	3.05	0.82	AGREED
10	Lack of regular health education on oral hygiene affects how seriously I take oral care.	3.25	0.77	AGREED
	CLUSTER MEAN	**2.90**		

Source: Researcher's fieldwork, 2025

The highest mean score (3.60) was recorded for "My personal desire for good appearance, fresh breath, and/or confidence motivates me to maintain oral hygiene", indicating a factor highly influencing oral hygiene practices among the respondents.

The lowest mean (2.40) was for "My cultural or traditional beliefs affect how I practice oral hygiene", showing that cultural beliefs as a factor has minimal influence on students' oral hygiene practices.

Overall mean range (2.40–3.60) shows that while intrinsic factors influences the respondents oral hygiene practices, external and environmental factors like cost of toothpaste, floss and mouth wash, limited access to water and bathroom facilities, and peer influence are only moderate to low in effect.

The standard deviations (0.66–0.92) indicate a moderate level of response variability, suggesting general agreement among respondents.

Therefore from table 4.3 above it can be inferred that the respondents desire for fresh breath, good appearance, and self-confidence is a factor that highly influences their oral hygiene practices. Conversely, external factors such as cultural beliefs, peer influence, and accessibility to dental services had relatively low influence. Nonetheless, academic workload, lack of regular oral health education, and cost of dental products were identified as moderate barriers to consistent oral care.

Discussion of Findings

Research Question 1: What is the level of knowledge about oral hygiene among undergraduates at the University of Benin?

Findings from this on the knowledge and practice of oral hygiene among undergraduates in the University of Benin revealed that the level of knowledge about oral hygiene among the respondents is high. This findings is in agreement with a study done by Okoroafor (2023) whose study results showed that majority of the participants were knowledgeable about oral hygiene and it's principles. This was further corroborated by Kandasamy (2023) whose findings also reported a significant high knowledge regarding oral hygiene among majority of the participants in his study.

Research Question 2: What are the oral hygiene practices of undergraduates adults of the University of Benin?

Furthermore, findings from this study also revealed that the majority of undergraduate students at the University of Benin practice basic oral hygiene habits such as regular tooth brushing, rinsing after meals, and tongue cleaning. Specifically, 78.9% of respondents brush their teeth daily, which is consistent with good oral hygiene practices recommended by dental health professionals. This finding aligns with studies such as (Petersen et al., 2022), which reported high awareness and practice of tooth brushing among university students in Nigeria. However, some important gaps were observed. Only 46.4% of the students reported "Always" or "Often" to replacing their toothbrush as recommended (every 3 months). Infrequent replacement may reduce the effectiveness of brushing and increase bacterial accumulation on bristles. Similarly, flossing frequency was relatively low, with nearly one-fourth (23.1%) never using dental floss. This was consistent with findings by Abdellatif et al. (2018),

who noted that flossing is rarely practiced among Nigerian undergraduates due to cost, habit, or lack of knowledge.

Dental visitation was also poor, as 30.2% of students reported never visiting a dentist for a check-up. This may be attributed to fear of dental procedures, cost, or limited access to dental clinics within or near the campus. The result supports previous studies by Gardner et al. (2023) indicating that most Nigerian youths seek dental care only when they experience pain or visible problems, rather than for preventive purposes. On a positive note, rinsing after meals (79.5%) and tongue brushing (90.6%) were common practices, showing that students are aware of the need to maintain oral freshness and cleanliness. This may be linked to their personal desire for good appearance and confidence. In contrast, high consumption of sugary foods (70.2% "Always" or "Often") poses a significant threat to oral health. This habit increases the risk of dental caries, especially when combined with irregular dental check-ups. Encouragingly, 48.1% of respondents reported never using tobacco products, indicating that most students avoid habits detrimental to oral and general health. However, the presence of a small group (12.3% "Always" and 28.9% "Often") who engage in smoking suggests the need for continuous oral health promotion and anti-tobacco awareness among young adults.

RQ3: What factors influences oral hygiene practices among undergraduate students of the University of Benin?

On the premise of the last research question, findings from this study further revealed important insights into the factors influencing the knowledge and practice of oral hygiene among undergraduates in the University of Benin. As shown in Table 4.3, the mean scores of respondents ranged from 2.40 to 3.60, indicating varying degrees of agreement with the items related to oral hygiene behavior and motivation. The item

with the highest mean score (3.60) was “My personal desire for good appearance, fresh breath, and/or confidence motivates me to maintain oral hygiene.” This suggests that personal motivation and self-image play a significant role in influencing students’ oral hygiene practices. This finding aligns with studies by Adeniyi (2020), who emphasized that individuals are more likely to adopt preventive health behaviors when they perceive personal benefits such as improved appearance and self-confidence. Items such as “Lack of regular health education on oral hygiene affects how seriously I take oral care” (3.25) and “My academic workload and/or busy schedule make it difficult to maintain proper oral hygiene” (3.15) also recorded relatively high mean scores. This indicates that although students recognize the importance of oral health, factors such as limited health education and busy academic schedules may hinder consistent oral hygiene practices. This is in corroborated in a study by Al-Omiri et al. (2020), whose findings revealed that time constraints, forgetfulness, or a busy academic schedules can hinder consistent oral hygiene practices.

On the other hand, lower mean scores were observed for items such as “My cultural or traditional beliefs affect how I practice oral hygiene” (2.40), “My friends influence how often I brush my teeth and/or visit the dentist” (2.48), and “Limited access to water and/or bathroom facilities affects my ability to practice oral hygiene consistently” (2.60). These findings imply that cultural beliefs, peer influence, and infrastructural challenges have minimal impact on the oral hygiene behaviors of most students. This may reflect a shift towards modern oral care practices and a growing awareness of personal responsibility for health maintenance among young adults.

Moderate agreement was also observed in items related to “The high cost of toothpaste, floss, and/or mouthwash” (2.95) and “Availability of dental services

within or around campus" (2.85), indicating that economic and accessibility factors may pose mild barriers to oral hygiene maintenance for some students which is supported by Adebayo (2019) whose studies showed a economic and accessibility factors as a factor influencing oral hygiene practices.

CHAPTER FIVE
SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

This study was carried out to examine the Knowledge and Practice of Oral Hygiene among Undergraduates in the University Of Benin. To achieve the purpose of the study, three (3) research questions were raised with a review of important literatures related to the study. The research design adopted for this study was the descriptive survey design. The population of the study consisted of 40,318 students of the University of Benin as of the 2024/2025 academic session. A total of three hundred and eight (308) students were selected for the study using a the purposive sampling technique. A well well-structured questionnaire was the instrument used for data collection. The questionnaire was validated by the project supervisor and two other lecturers in the Department of Health, Safety and Environmental Education. Pearson Product Moment Correlation Coefficient (PPMC) was used to establish the reliability of the questionnaire. A total of two hundred (308) questionnaires were administered to the sample respondents and data collected was analyzed using mean, standard deviation, frequency count and percentages.

Findings

The findings of the study revealed that:

- Respondents have adequate knowledge of the principles and benefits of good oral hygiene, which serves as a foundation for healthy oral practices.
- The oral hygiene practices among the respondents is moderate.
- Oral hygiene among students is largely influenced by personal motivation and awareness.
- Economic factors have lesser influence on the oral hygiene practices among the respondents.

- Cultural factors have lesser influence on the oral hygiene practices among the respondents.
- Institutional factors have lesser impact on the oral hygiene practices among the respondents.

Conclusion

This study examined the knowledge and practice of oral hygiene among undergraduate students in the University of Benin. The findings revealed that most respondents possess adequate knowledge of the principles and benefits of good oral hygiene, which serves as a solid foundation for healthy oral practices. However, despite this commendable level of knowledge, the actual practice of oral hygiene among the students was found to be moderate, indicating that their knowledge did not translate into consistent oral hygiene practices.

The study further established that oral hygiene practices among the respondents are primarily influenced by personal motivation and awareness. Students' desire for good appearance, fresh breath, and confidence serves as the major driving force behind their oral health behavior. In contrast, economic, cultural, and institutional factors were found to exert minimal influence, suggesting that oral hygiene among university students is becoming more individually driven than socially or environmentally determined.

In conclusion, while students in the University of Benin demonstrate good knowledge of oral hygiene and engage in some positive practices, there remains a need to strengthen consistent preventive behaviors such as regular dental check-ups and proper flossing. Continuous oral health education, improved accessibility to dental services, and university-led awareness campaigns are essential to bridge the gap

between knowledge and practice, thereby promoting sustainable oral health habits among undergraduates.

Recommendations

From the research findings of this study, the researcher was able to make the following recommendations;

- Knowledge should be sustained and strengthened through periodic oral health education programs, seminars, and awareness campaigns organized by the University Health Centre and related departments.
- Continuous encouragement of proper brushing techniques, regular replacement of toothbrushes, flossing, and periodic dental check-ups.
- Health promotion efforts should focus on emphasizing the benefits of good oral hygiene for self-confidence, appearance, and social interaction. Peer-led campaigns and student ambassador programs should be used to encourage positive behavioral change.
- Efforts should be made to ensure affordability and accessibility of oral care materials. The University can partner with dental product companies to provide subsidized toothpaste, toothbrushes, and floss for students during health outreach programs.
- Educational interventions should continue to promote evidence-based oral hygiene practices while respecting beneficial traditional methods such as the safe use of chewing sticks.

Suggestion for Further Studies

1. Knowledge and practices among students in public and private universities.
2. Oral hygiene behavior among undergraduates over time.

3. Assessment of the impact of oral health education programs on students' oral hygiene knowledge and practices.

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APPENDIX
DEPARTMENT OF HEALTH SAFETY AND ENVIRONMENTAL EDUCATION,
FACULTY OF EDUCATION,
UNIVERSITY OF BENIN, BENIN CITY
QUESTIONNAIRE ON
KNOWLEDGE AND PRACTICE OF ORAL HYGIENE AMONG

UNDERGRADUATES IN THE UNIVERSITY OF BENIN

Dear respondents,
This questionnaire is strictly for academic purposes. The information you provide will be treated in strict confidence. In no way will your name appear in the final research report. Your assistance and cooperation will be highly appreciated. Please kindly choose the option most applicable to you. Thank you.

SECTION A: DEMOGRAPHIC INFORMATION

Gender: Male [ ] Female [ ]

Age: 16-20 Years [ ] 21-25 Years [ ] 26 Years and above [ ]

Faculty: (Kindly Indicate) _____

Year of Study: 100L[ ] 200L[ ] 300L [ ] 400L[ ] 500L[ ] 600L[ ]

SECTION B:

LEVEL OF KNOWLEDGE ABOUT ORAL HYGIENE

1. How often should an individual ideally brush their teeth each day?

a) Once a day b) Twice a day c) Three times a week d) Only when necessary

2. What is the recommended duration for brushing teeth?

a) 30 seconds b) 1 minute c) 2 minutes d) 5 minutes

3. Which of the following is the best tool for cleaning between teeth?

a) Toothpick b) Dental floss c) Finger d) Cotton swab

4. What is the main cause of dental caries (tooth decay)?

a) Drinking too much water b) Bacterial plaque and sugar intake c) Brushing twice

daily

d) Eating fruits and vegetables

5. Which of these is an early sign of gum disease?

a) Bleeding gums while brushing b) White teeth c) Smooth gums d) Strong breath

6. What is the recommended frequency for visiting the dentist for a check-up?

a) Every month b) Every 6 months c) Once every 5 years d) Only when experiencing pain

7. Which substance in toothpaste helps to prevent tooth decay?

a) Calcium b) Fluoride c) Vitamin C d) Sodium chloride

8. Which of the following habits is harmful to oral health?

a) Regular flossing b) Excessive consumption of sugary foods and drinks c) Brushing teeth twice daily d) Drinking water frequently

9. Bad breath (halitosis) can be caused by:

a) Poor oral hygiene and gum disease b) Drinking clean water c) Regular tooth brushing

d) Eating vegetables

10. Which of these practices is MOST effective for preventing gum disease?

a) Chewing gum frequently b) Proper tooth brushing and flossing daily c) Drinking soda daily d) Avoiding dental visits

ORAL HYGIENE PRACTICES

1. How often do you brush your teeth?
☐ Once daily ☐ Twice daily ☐ More than twice daily ☐ Occasionally
2. What type of toothbrush do you use most often?
☐ Soft-bristled ☐ Medium-bristled ☐ Hard-bristled ☐ Not sure
3. How often do you replace your toothbrush?
☐ Every 3 months ☐ Every 6 months ☐ Once a year ☐ Only when it is worn out
4. Do you use dental floss to clean between your teeth?
☐ Yes, daily ☐ Yes, occasionally ☐ Rarely ☐ Never
5. How often do you visit a dentist for check-up?
☐ Every 6 months ☐ Once a year ☐ Only when in pain ☐ Never

6. Do you rinse your mouth after meals?
☐ Always ☐ Sometimes ☐ Rarely ☐ Never
7. Which of the following do you use regularly for oral hygiene? (You can tick more than one)
☐ Toothpaste with fluoride ☐ Mouthwash ☐ Chewing sticks (traditional) ☐ Herbal remedies ☐ None of the above
8. Do you brush your tongue while brushing your teeth?
☐ Yes, always ☐ Sometimes ☐ Rarely ☐ Never
9. How often do you consume sugary foods or drinks (soda, sweets, cakes, etc.)?
☐ More than once daily ☐ Once daily ☐ Few times a week ☐ Rarely/Never
10. Do you smoke or use tobacco-related products?
☐ Yes, regularly ☐ Yes, occasionally ☐ No

FACTORS INFLUENCING ORAL HYGIENE PRACTICES

SA = STRONGLY AGREE
A = AGREE
D = DISAGREE
SD = STRONGLY DISAGREE

S/N	ITEM	SA	A	D	SD
1.	My friends influence how often I brush my teeth and/or visit the dentist.				
2.	The high cost of toothpaste, floss, and/or mouthwash prevents me from maintaining good oral hygiene.				
3.	Limited access to water and/or bathroom facilities affects my ability to practice oral hygiene consistently.				
4.	My academic workload and/or busy schedule make it difficult to maintain proper oral hygiene.				
5.	The availability of dental services within or around the campus influences how I care for my teeth.				
6.	Advertisements and media campaigns about oral care products influence my oral hygiene practices.				
7.	My cultural or traditional beliefs (e.g., using chewing sticks, herbal remedies) affect how I practice oral hygiene.				
8.	My personal desire for good appearance, fresh breath, and/or confidence motivates me to maintain oral hygiene.				
9.	Fear of pain and/or discomfort at the dentist prevents me from going for regular dental checkups.				
10.	Lack of regular health education on oral hygiene affects how seriously I take oral care.				