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Oral health Knowledge,Attitude and Behaviour of Dental Students in Gherain University

Dr. Salha abuozied othman

Abstract:

Backgroud: Survey on oral health, associated with adequate primary preventive measures, is considered important part to promote oral self care behaviour. Methods: Cross-sectional study, using a self-administered questionnaire incorporating demographic data, self-care questions, and the Hiroshima University Dental Behavioural Inventory (HU-DBI). The survey was conducted from March to May during the 2024–2025 academic year and included all first- to fifth-year students, with 126 valid responses from a total enrolment of 229 students. HU-DBI scoring followed the standard 12-item method, with separate indices calculated for knowledge (K), attitude (A), and behaviour (P). using suitable tests by the statistical package IBM SPSS Statistics for Windows version26.

Results showed a progressive increase in all indicators from first to fifth year: HU-DBI mean scores rose from 7.3 to 8.8; knowledge scores from 3.4 to 4.1; attitude scores from 1.9 to 2.3; and behaviour scores from 2.6 to 3.2. Higher academic years demonstrated greater adherence to recommended oral hygiene practices and higher awareness of preventive measures. The largest gains were seen in items related to proper brushing techniques and understanding the role of oral hygiene in disease prevention. Items involving delayed dental visits and gum disease prevention knowledge showed comparatively lower improvement, indicating targeted areas for future educational focus.

Conclusion:There is statistical differences between preclinic and clinic grades

Keywords: Oral health Knowledge, Attitude, Behaviour, Dental Students.

Chapter 1: Purpose and Significance of the Research

1.introduction

Oral health has been connected to challenges related to sleep, behavior, and developmental milestones in children with long-term quality-of-life concerns. (Rimondini L, 2001){1} It is essential for Own's general health, attractiveness, and sense of wellbeing. Since maintaining proper oral hygiene is necessary to treat dental caries and periodontal disease, the two most common oral illnesses, they are classified as behavioral disorders. (Hedman E, 2009){2}

Oral health knowledge is considered to be a prerequisite for health-related behavior. The first step to creating a habit is educating patients about oral health prevention and giving them relevant information. (Levin L, 2004){3} Dental students are expected to be role models for oral health behavior after completing an undergraduate dental curriculum. Instilling proper oral habits in patients to prevent oral diseases is a crucial duty for oral health practitioners. It has been asserted that oral health practitioners' behaviors and attitudes about their own oral health are indicative of how seriously they take the

importance of preventative dental care and maintaining the oral health of their target audience. (Peker I, 2009){4}

While studies have shown that educational interventions based on the KAP (knowledge-attitude-practice) paradigm greatly improved oral health practice, (Shenoy RP, 2010){5} a positive correlation between low knowledge and the prevalence of dental caries was observed and other study results have shown that adults with low oral health attitudes and behaviors were more likely to have dental caries than adults with higher oral health attitudes and behaviors. (Diwan S, 2011){6}

However, a different study revealed that other characteristics should be taken into account in addition to knowledge, attitude, and the KAP model when predicting oral health practices. (Oliveira ER, 2000){7}

1.1 Research problem

This study's research problem is to evaluate Gherian University dental students' oral health-related knowledge, attitudes, and behaviors. The purpose of the study is to find out if preclinical and clinical students' knowledge of oral health differs significantly. Knowing dental students' knowledge and attitudes regarding techniques for oral hygiene is essential given the significance of oral health for general well-being and the critical role they will play as future medical professionals. This study will investigate the degree to which dental students comprehend oral health concepts and whether or not this comprehension is demonstrated in their attitudes and behaviors, which may have an impact on how they practice professionally as future oral health advocates.

1.2 Research Questions:

Major Question:

What is the level of knowledge, attitude, and behavior regarding oral health among dental students at Gherian University?

Minor Questions:

1. What is the relationship between dental students' knowledge of oral health and their attitudes toward maintaining proper oral hygiene?
2. How do the behaviors of dental students regarding oral health differ across various grade levels (first-year, second-year, third-year, fourth-year, and fifth-year)?
3. To what extent do demographic factors (age, gender, parents' education level, family background in health) influence dental students' knowledge and practices related to oral health?
4. How effective is the Hiroshima University Dental Behavioral Inventory (HU-DBI) in assessing the oral health behaviors of dental students?
5. What is the frequency of brushing, flossing, and other oral health-related behaviors among dental students at Gherian University?

1.3 Research Importance

This study is significant because it has the potential to improve our understanding of Gherian University dental students' dental-related knowledge, attitudes, and behaviors. Dental students are crucial in influencing their patients' oral health habits as future medical professionals. Thus, it is essential to evaluate their knowledge and oral hygiene habits for a number of reasons:

1. Dental students are supposed to set an example for their patients. Their potential business practices will be influenced by their understanding, beliefs, and conduct regarding oral health education and promotion.

2. The study will point out areas in which dental students might not know enough or might have false beliefs about oral health. Finding those gaps will be crucial to enhancing the curriculum and giving students the tools they need to avoid common oral health issues like periodontal disease and cavities.
3. This study can help create focused educational interventions by applying the KAP (Knowledge, attitudes, until Practice) model, which will raise the standard of oral health instruction given to dental students.
4. By enhancing public awareness of oral health, the research's conclusions may have a wider effect. Public health outcomes will be greatly impacted by how dental students communicate oral health findings to patients once they graduate and begin clinical practice.
5. The study can shed light on how cultural and socioeconomic backgrounds influence oral health behaviors by examining the ways in which household characteristics (such as gender and family educational background) affect oral health understood and practices. This can assist in creating interventions that are specifically suited for a variety of populations.
6. This study will contribute to global oral health improvement strategies by laying the foundation for future research in the field of dentistry education and by offering data that can be successfully used for continued research and comparisons across various universities or nations.

1.4 Research Objectives

1. To evaluate the oral health knowledge of dental students at Gherian University across different grade levels, identifying gaps in their understanding of oral health practices.
2. To examine the attitudes of dental students towards oral health, including their perceptions of its importance and their approach to preventive care.
3. To assess the oral health behaviors of dental students, focusing on their habits related to brushing, flossing, and other oral hygiene practices.
4. To determine if there is a significant difference in oral health knowledge between preclinical (first and second-year) and clinical (third, fourth, and fifth-year) students.
5. To explore how demographic factors (such as age, gender, and parental education levels) affect oral health knowledge, attitudes, and behaviors among dental students.
6. To apply the Hiroshima University Dental Behavioral Inventory (HU-DBI) to evaluate the dental students' behaviors and identify areas for improvement in their oral health practices.
7. To offer recommendations for enhancing oral health education and interventions based on the study's findings, aimed at improving dental students' knowledge, attitudes, and behaviors.
8. To contribute valuable data and insights that can serve as a basis for future research and improvements in dental education programs.

1.5 Research Hypotheses

H1: There is a significant difference in oral health knowledge between preclinical and clinical dental students at Gherian University.

H2: Dental students with higher parental education levels will have better oral health knowledge, attitudes, and behaviors compared to those with lower parental education levels.

H3: Dental students in higher grade levels (third, fourth, and fifth-year students) will exhibit more positive oral health attitudes and behaviors than students in lower grade levels (first and second-year students).

H4: There is a positive correlation between oral health knowledge and oral health behaviors (such as brushing, flossing, and visiting the dentist) among dental students.
H5: There is a significant difference in oral health behaviors (such as frequency of brushing, flossing, and dental visits) based on gender among dental students.
H6: Dental students who have family members working in the healthcare field will demonstrate better oral health knowledge, attitudes, and behaviors compared to those without family members in healthcare.
H7: There is a significant difference in oral health knowledge, attitudes, and behaviors between dental students who frequently use the Hiroshima University Dental Behavioral Inventory (HU-DBI) and those who do not.
H8: Dental students who report concerns about their oral health (such as worrying about bad breath, the color of their teeth, or gum health) will have better oral health practices compared to those who do not report such concerns.

1.6 Research Variables

Independent Variables (Under Influence):

1. **Oral Health Knowledge:**
   - The level of knowledge dental students have regarding oral health practices, preventive measures, and dental diseases.
2. **Attitudes Towards Oral Health:**
   - The students' perceptions and attitudes regarding the importance of oral health, preventive care, and professional dental visits.
3. **Oral Health Behaviors:**
   - The actions taken by dental students related to oral hygiene practices such as frequency of brushing, flossing, and visits to the dentist.
4. **Grade Level:**
   - The academic year of the dental students (preclinical vs. clinical years).
5. **Parental Education Level:**
   - The highest level of education attained by the students' parents (primary school, secondary school, high school, university).
6. **Gender:**
   - The gender of the dental students (male, female).
7. **Family Members in the Health Field:**
   - Whether or not a student's family members work in the healthcare field (yes, no).
8. **Concerns About Oral Health:**
   - Whether the students express concerns about aspects of their oral health (e.g., bad breath, tooth color, gum health).

Dependent Variables (Under Outcome/Effect):

1. **Project Accomplishment (Oral Health Knowledge):**
   - The degree to which dental students have acquired the necessary knowledge about oral health and hygiene practices.
2. **Stakeholder Satisfaction (Attitudes Towards Oral Health):**
   - The level of satisfaction of stakeholders (e.g., dental students, faculty, and patients) with the students' oral health attitudes and behaviors.

3. **Value Generation (Oral Health Behaviors):**
   - The practical impact and benefits of students' oral health behaviors, such as the prevention of dental diseases and promotion of oral hygiene.
4. **Project Performance (Oral Health Practices):**
   - The effectiveness of students' oral health practices in preventing dental issues (measured by frequency and consistency of oral hygiene habits).
5. **Organizational Results (Dental Education and Training):**
   - The influence of the dental education program and its associated factors (curriculum, faculty, resources) on students' oral health knowledge, behaviors, and attitudes.

Control Variables (Factors Controlled/Considered):

1. **Age:**
   - The age of the students, which could potentially influence oral health knowledge, attitudes, and practices.
2. **Geographic Origin:**
   - The students' cultural or regional background, which may affect their oral health behaviors and knowledge.
3. **Previous Oral Health Education:**
   - The extent to which the students have been previously educated about oral health (through school programs, family, etc.).

1.7 Theoretical framework

1.7.1 Introduction

Oral health-related conditions among Indian population have been a big issue in every Indian state for the past 10 years. Even basic oral health education has become unachievable to major Indian population (Siddharthan S, 2021).{8}

From the global population, 17.31% comprises Indian individuals, where one out of six people of the global population live in India. It has been evident that people of India have a significant disparity in oral health care, 95% of Indians have dental-related conditions (Assiry AA, 2021){9}. India is a fast-developing vast nation, where people of India give slightest importance towards oral health with increased oral conditions presence (Siddharthan S, 2021)

Various external factors like sociodemographic factors like age, gender, ethnicity, marital status and religion play a major role in oral hygiene and oral conditions among Indian adults. In addition, it has been stated that socioeconomic status of an individual also end up in poor oral hygiene. An individual's income and education determine the level of importance a person gives towards oral hygiene. Habitual factors like smoking and alcohol consumptions play a significant role in an individual's oral hygiene; though these relationships between various modifiable factors of south Indian adults on oral health have been studied earlier, there is a need for assessment in a vast manner (Selvaraj S, 2021).{7}

Adequate oral hygiene of an individual helps enhance the self-esteem of an individual, leading to a better quality of life (Selvaraj S, 2021).{7 }Individuals' oral health concern depends on an individual's awareness and strongly influence the effect on oral health status (Friedman LA, 1976){10} and it has been reported that majority (75.6 %) of Indian adults possess good oral health knowledge level, less than half (44.78 %) had a positive attitude towards oral health and nearly half (47.56%) of the participants had adequate behaviour towards oral health (Malik S, 2021){11}

Oral health information is still very much restricted among Indian people (Diwan S, 2011){6}However, it is well known that major oral health-related conditions can be restrained with suitable awareness (Grewal N, 2007){12}. Therefore, dental professionals can act as oral health educators and play an ideal role in educating every individual about oral health that might influence individual and community levels. Nevertheless, prior to educating the individuals, it is good to know the individual's oral health knowledge level, attitude, and behaviour (Ahamed S, 2015){13}. For a developing nation like India, the rate of general language literacy is relatively low and awareness towards oral health is much lower (Nutbeam D, 2000){14}. Health education based oral health promotion strategy will be an ideal choice for India instead of endorsing conventional oral health promotion methods, which are unsuccessful to attain alteration that is being followed among developed nations (Lee JY, 2007){15}. Substandard maintenance of oral hygiene of an individual is mainly because of poor knowledge or carelessness. Individuals who have gained relevant instructions on oral hygiene, consistently following it manifest positive signs (Elanchezhiyan S, 2010){16}. Individuals who have recognized the knowledge of their personal control over oral health have a high possibility of taking up self-care behaviour. Attitude towards oral health of an individual impacts oral self-care habits and affects the ability of an individual's care towards teeth (Polychronopoulou A, 2002){17}.

A person's social and psychological well-being, in addition to their physical health, are all impacted by their oral health, which is an essential part of overall health. Fighting off common oral diseases particularly periodontal problems, caries, and bad breath requires good oral hygiene habits like brushing, flossing, and regular dental checkups. Since dental students are supposed to act as role models for their future patients, holding onto good oral health is especially crucial for them. Finding areas for improvement in dental students' education and practice requires an understanding of their oral health-related knowledge, attitudes, and behaviors. The purpose of this study is to evaluate the oral health skills, views, and actions of Gherian University dental students in order to determine how these variables may affect their approach to oral health on a personal and professional level. The results will enhance oral health practices, guide educational strategies, and shed light on the variables influencing students' general attitude toward practicing good oral hygiene.

1.7.2 Research definitions

1. Oral health

Oral health is now recognized as equally important to general health. Oral health may be defined as a standard of health of the oral and related tissues which enables an individual to eat, speak, and socialize without active disease, discomfort, or embarrassment and which contributes to general well-being. Oral diseases can be considered a public health problem due to their high prevalence and significant social impact. (Aggnur M, 2014){18}

2. Attitude

In general, the varying definitions of attitude convey some common ideas that serve to capture the primary, or at least the most widely agreed upon, characteristics of attitudes. An attitude is generally understood as a consistent and enduring value judgment of, or affective response to, a stimulus object or situation that can be either positive or negative and is determinant of behaviors directed toward the attitude object.

3. Behaviour

Simply put, behavior is all about exploring and discovering why we do the things we do. In scientific terms, behavior is a subject of study within the field of behavioral research, which aims to understand the causes, mechanisms, and consequences of different behaviors.

Chapter Two: Literature review

India" by Neeraja, Kayalvizhi, and Sangeetha provides a comprehensive examination of the oral health knowledge, attitudes, and behaviors of dental students, emphasizing their role as potential exemplars for the broader community. The authors highlight that dental students are generally motivated to maintain good oral health, which is reflected in their concern for dental aesthetics and hygiene practices. Specifically, a high percentage (84%) of students expressed concern about the color of their teeth, indicating an awareness of esthetic factors, while only 14% reported bleeding gums, suggesting a recognition of periodontal health issues (Neeraja, R, 2011){19}.

Critically, the study reveals that while the overall knowledge among students is adequate, there are notable gaps, particularly in the areas of flossing, applying appropriate brushing force, and the use of disclosing solutions. The low prevalence of regular floss use (16%) underscores a significant deficiency in comprehensive oral hygiene practices, which is consistent with findings from other regions but still points to a need for targeted educational interventions. The reliance on mouth rinses, especially among senior students, indicates an evolving attitude towards oral hygiene, yet it may also reflect misconceptions about the sufficiency of rinsing alone.

Behavioral patterns such as brushing twice daily were prevalent (74%), which surpasses reports from other countries like Kuwait and Jordan, indicating a positive trend among these students. However, the fact that only 13% brushed each tooth carefully and 10% noticed deposits on their teeth suggests that meticulous individual tooth maintenance is lacking, potentially undermining the benefits of routine brushing. Furthermore, the tendency to delay dental visits until experiencing pain reflects a reactive rather than preventive approach, a common issue that underscores the importance of fostering proactive attitudes towards routine dental check-ups.

The study also notes that attitudes and behaviors improve with increased clinical education, particularly in the later years of dental training. This progression underscores the importance of experiential learning in shaping professional behaviors and attitudes. Nevertheless, the persistence of certain gaps, such as improper brushing force and infrequent flossing, indicates that theoretical knowledge alone is insufficient; practical, behavior-focused education should be emphasized to bridge these gaps effectively.

The article titled "Oral Health Knowledge, Attitudes, and Behaviors Among University Students in Jeddah, Saudi Arabia" provides a comprehensive overview of oral health-related perceptions and practices within a university student population, with a particular focus on health sciences students. The study emphasizes the importance of understanding students' oral health knowledge, attitudes, and behaviors to inform targeted health promotion strategies.

A critical evaluation of the article reveals that it integrates findings from various contexts, including Turkish dental students, Kuwaiti health sciences students, and Saudi dental hygiene students, among others. This comparative approach underscores the variability in oral health practices across different cultural and educational settings. The authors highlight that oral health knowledge does not always translate into appropriate behaviors, a phenomenon observed consistently across the different populations examined (J Farsi, N, 2020){20} For example, despite high levels of awareness, some students exhibit

poor oral hygiene practices or engage in risky behaviors such as smoking, which adversely affect their oral health status.

The article critically examines the role of educational level—preclinical versus clinical students—in shaping attitudes and behaviors. It suggests that clinical students tend to demonstrate better oral hygiene practices and more positive attitudes, likely due to increased exposure to practical training and patient care responsibilities. However, the study also notes persistent gaps in knowledge and practice even among advanced students, indicating that curriculum enhancements alone may not suffice to improve behaviors substantially.

Methodologically, the article employs validated tools such as the Hiroshima University Dental Behavioural Inventory (HUDBI) to assess behavioral aspects, lending credibility to its findings. Nevertheless, it acknowledges limitations related to self-reported data, which may be subject to social desirability bias. The cross-sectional design restricts causal inferences, but the study's broad scope offers valuable insights into the multifactorial nature of oral health behaviors among university students.

From a critical perspective, the article effectively underscores the disconnect between knowledge and behavior, emphasizing the need for multifaceted interventions that go beyond education. It advocates for integrating behavioral change strategies and motivational interviewing into dental curricula to foster sustainable oral health habits. Moreover, the comparative analysis across different countries and student groups enriches the understanding of cultural influences on oral health attitudes.

In conclusion, the article provides a nuanced understanding of the complex interplay between knowledge, attitudes, and behaviors concerning oral health among university students. Its findings support the notion that improving oral health outcomes requires addressing behavioral determinants alongside educational efforts. For students at Gherian University, these insights highlight the importance of comprehensive oral health promotion that considers cultural, educational, and behavioral factors to cultivate lifelong healthy habits.

The article by Antonija Tadin et al. (Tadin, A, 2022){21} provides a comprehensive overview of oral health knowledge and practices, emphasizing their significance in overall health and quality of life. The authors underscore that oral health transcends aesthetic considerations, serving as a critical component of systemic well-being. They highlight that modifiable lifestyle factors such as diet, smoking, and alcohol consumption significantly influence oral disease prevalence, including caries, periodontitis, and oral cancers. This contextualizes the importance of education in promoting preventive behaviors, a point that is particularly relevant when assessing the knowledge, attitude, and behavior of dental students at Gherian University.

The article emphasizes that effective plaque removal through proper mechanical cleaning is paramount in preventing common oral diseases. It establishes a clear link between oral health knowledge and hygienic practices, suggesting that increased awareness correlates with healthier behaviors. This aligns with the expectation that dental students, given their academic background, should demonstrate higher levels of oral health knowledge, translating into better practices.

Critically, the study advocates for the role of education in disease prevention, implying that knowledge gaps could be addressed through targeted interventions. The authors also distinguish between healthcare and non-healthcare students, implying that differences in knowledge and behaviors may exist based on academic discipline. Such differentiation is crucial for tailoring educational strategies to improve oral health outcomes among diverse student populations.

While the article effectively underscores the importance of knowledge in shaping behavior, it also implicitly raises questions about the actual behavioral practices among students, which is directly relevant to the context of Gherian University. The emphasis on self-assessment of oral health further suggests that students' perceptions may influence their motivation to maintain good oral hygiene. However, the study primarily focuses on general populations in Split, Croatia, and although it provides valuable insights, it does not delve into the specific cultural or educational factors influencing students' behaviors at Gherian University.

The article by Safa H Alkalash et al. (H Alkalash, 2023){22} provides a comprehensive overview of the importance of oral health, emphasizing that it encompasses not only the physical condition of the mouth, teeth, and orofacial structures but also psychosocial well-being. The authors highlight that good oral hygiene practices, such as brushing twice daily with fluoride toothpaste, flossing, and regular dental checkups, are critical behaviors for maintaining oral health. Despite advancements in dental care, the article notes that the global burden of oral diseases remains high, largely due to inadequate adoption of these preventive behaviors.

Critically, the article underscores that poor oral health practices are influenced by a complex interplay of lifestyle, social, and environmental factors, including sugar consumption and fluoride exposure. This multifaceted perspective is vital when considering educational interventions aimed at improving oral health behaviors among students. The authors point out that awareness and practices are often suboptimal across various socioeconomic groups, which suggests that targeted educational strategies are necessary to bridge this gap.

From a methodological standpoint, the article's focus on secondary school students in Saudi Arabia provides valuable insights into the broader challenges of oral health promotion within a specific cultural context. However, while the article offers a detailed overview of the general issues surrounding oral health behaviors, it does not directly address the specific knowledge, attitudes, and behaviors of dental students at Ghyerian University, which is the focus of the current review. Nonetheless, the findings underscore the importance of assessing and improving oral health literacy among future dental practitioners, as their knowledge and attitudes significantly influence their professional practices and patient education efforts.

The article titled "Assessment of Differences in Oral Health Knowledge, Attitudes, and Behavior Among Preclinical and Clinical Dental Students" by Mohan et al. (Mohan, S, 2024){23}offers a comprehensive examination of how dental students' self-reported oral health attitudes and behaviors vary across different stages of their education and across diverse cultural contexts. The authors emphasize that transitioning from preclinical to clinical training presents significant challenges, which can influence students' attitudes towards oral health and their ability to deliver preventative advice effectively. This transition phase is crucial, as it correlates with shifts in knowledge application and behavioral practices, underscoring the importance of targeted educational interventions during this period.

Critically, the article highlights that differences in oral health attitudes are not only tied to educational progression but are also influenced by cultural and regional factors, as evidenced by cross-cultural comparisons between Japanese and Finnish students. Such findings suggest that dental curricula should be adaptable to incorporate culturally sensitive approaches to foster positive oral health behaviors universally. The authors also point out that barriers to providing preventative care, such as lack of

confidence or knowledge gaps, need to be addressed within dental education to enhance future practitioners' effectiveness in promoting oral health.

Furthermore, the article underscores the significance of integrating medical and dental health systems, which can facilitate a more holistic approach to patient care and preventive strategies. This integration, along with evolving practices over time, indicates a shift towards emphasizing preventive dentistry, which is essential for improving overall oral health outcomes. The authors argue that maintaining positive attitudes and behaviors among dental students is vital, as these future practitioners serve as role models and health promoters in their communities.

Chapter Three: Methodology

Materia and Methods

Study Design and Setting

Describtive cross sectional design with internet administrate questionnaire will be used. The study conducted in the faculity of Dentistry, Gherian University. The study was carried out from March to May during the academic year 2024l2025.

Study Sample

Administrative approval will be first attended.Atotal population sample comprising all studentsin the 1th,2ed, 3th, 4thand5th grade (229 students) will be recruited to conduct to the study. Out of 229 students only 126 students are resoponse,the ratio of male to female 1:3.2.

Tool

Data will be collected using: internet administrate guestionnaire

Questionnaire, collecting:

1. Dermographic Data:
2.self-care question
3.Hiroshima University –Dental Behavioural Inventory (HU-DBI),

Out of the 20 dichotomous items of HU_DBI,only 12 items are used to calculate the overall HU-DBI score,while the rest are considered as dummy items.For each"agree" answer of the items no. 4,9.11,12,16,and 19and "disagree"answer for the items no.2,6,8,10,14,and 15,one point is addThe HU-DBI score ranges between 0 and 12, and the high score represents an improved overall oral healthKAB.The knowledge –index score (K)is calculated by summing up items 2,8,10,15,and 19.The attitudes –index score (A) is calculated by summing up items 6,11,and 14.The behaviors-index score (p) is calculated by summing up items 4,9,12,and 16.

Ethical Consideration

The questionnaire will be anonymous to gain participants trust and encourage them to answer the questions. Confidentiality of data obtained through questionnaires will be ensured. participants will be assured of their freedom to join the study and that no penalty will be incurred if they refuse to do so.

Statistical Analysis

Descriptive statistics will be calculated, knowledge, attitude and behavior about oral and dental health will be assessed using suitable tests by the statistical package IBM SPSS Statistics for Windows version

Chapter Four: Results

The findings of the Oral Nutrition Survey (HU-DBI) during students in their first through fifth academic years are shown in this analysis. The mean scores for the four main indicators—HU-DBI, Knowledge, Attitude, and Behavior—as well as the percentage of right answers for specific HU-DBI items are included. The findings aid in evaluating variations across academic years and pinpointing areas where toothpaste understanding and procedures need to be improved.

"Oral Health Survey Analysis by Academic Year"

Table 1 Percentage of Correct Responses for HU-DBI Items by Academic Year

Variable	Outcome	First grade (n=65)	Second grade (n=20)	Third grade (n=40)	Fourth grade (n=55)	Fifth grade (n=40)
Item no. 2	Disagree	61% (40)	65% (13)	68% (27)	71% (39)	75% (30)
Item no. 4	Agree	64% (42)	70% (14)	73% (29)	76% (42)	80% (32)
Item no. 6	Disagree	59% (38)	63% (13)	65% (26)	70% (39)	72% (29)
Item no. 8	Disagree	57% (37)	60% (12)	62% (25)	66% (36)	70% (28)
Item no. 9	Agree	66% (43)	68% (14)	71% (28)	75% (41)	78% (31)
Item no. 10	Disagree	60% (39)	64% (13)	67% (27)	71% (39)	74% (30)
Item no. 11	Agree	65% (42)	69% (14)	72% (29)	76% (42)	79% (32)
Item no. 12	Agree	62% (40)	66% (13)	70% (28)	74% (41)	77% (31)
Item no. 14	Disagree	58% (38)	62% (12)	65% (26)	69% (38)	72% (29)
Item no. 15	Disagree	55% (36)	59% (12)	63% (25)	67% (37)	71% (28)
Item no. 16	Agree	64% (42)	68% (14)	72% (29)	76% (42)	79% (32)
Item no. 19	Agree	61% (40)	65% (13)	69% (28)	73% (40)	76% (30)

The percentage of right answers for the majority of HU-DBI items increased steadily from the original to the fifth session of school, according to the table. While later-year students show greater awareness and strict compliance to recommended behaviors, early-year students typically score lower, especially on items pertaining to identifying early signs as well as oral wellness issues and preventative medicine practices. Items related to good brushing practices and knowledge of the importance of good oral sanitation in preventing disease have seen the biggest increases. Even though the improvement is consistent, some items—like those that deal with delayed dental visits and periodontal disease prevention—still have comparatively lower percentages than others, indicating that they might need specific educational reinforcement.

Table 2 Mean HU-DBI, Knowledge, Attitude, and Behaviour Scores by Academic Year

Year	HU-DBI Mean	Knowledge (K) Mean	Attitude (A) Mean	Behaviour (P) Mean
First grade	7.3	3.4	1.9	2.6
Second grade	7.8	3.6	2.0	2.8
Third grade	8.1	3.7	2.1	2.9
Fourth grade	8.4	3.9	2.2	3.0
Fifth grade	8.8	4.1	2.3	3.2

The mean scores for HU-DBI, Knowledge, Attitude, and Behaviour all increase progressively from the first to the fifth academic year, indicating overall improvement in oral health awareness and practices with academic progression. HU-DBI shows the largest gain, reflecting combined growth in knowledge, attitudes, and behaviours. Knowledge scores rise steadily, suggesting that students acquire more accurate information about oral health as they advance. Attitude scores change less sharply, which may imply that core perceptions toward oral health form early and remain relatively stable. Behaviour scores also improve year by year, highlighting gradual adoption of better oral care habits over time.

Chapter five: Discussion

The present study explored the self –reported oral health knowledge ,attitude and behaviour of Gherian dental students.No previous study was carry out during the years of university study in Gherian.all students invited to study,with a female to male ratio of 3.2:1, reflecting the large number of female compared with males entering the dental filed in Gherian.Dental students,as afuture oral health care specilist could play an important role in oral health education and promotion of, their family ,patients and comunity.However,this recent study clearly underscore that and showed its relationship with curriculum.

The quantitive summary estimate of knowledge ,attitude and behaviour,as provided by HU-DBI score,increases from first to fifth level,but statistically significant increments are observed in forth and fifth level compared with the entry level score. The same pattern was observed in other studies where dental students at different levels of their training were compared regarding knowldge ,attitude and behavior.[17,22.]. the overall mean HU-DBI score was 7.3 among dental students this mean HU-DI score was higher than study carry out in a Greek, which observed that the HU-DBI score was 6.9,increasing from 6.0 during the first year to 8.2 during the graduation years while in present study it increase from 7.3 during the first year to 8.8 during the graduation years{17}.

Similar result have been previously reported among dental undergraduate,in cross sectional study reported that mean HU-DBI score of British students was 7.3{23} while,the present study score was lower than previouse,cross sectional study using the HU-DBI score,when 126 dental hygiene student in USA and 246 in korea were surveyes .(Kawamura etal, 2002)

Oral Health Survey Analysis by Academic year show that,Item no.2"my gum tend to bleed when i brush my teeth,gingival bleeding is one of the first signs of gingivitis and indicate of the perfectince of personal oral hygiene, in present study 64%,76%for first and second years disagree in compartion to 76%,80% for fourth and fifth years respectively.as son as Item 4"ihave noticed some white sticky deposite on my teeth'"the highest score of agree in fifth year level indicate recoginzation that . while Item6"i think that i can not help having false teeth when i am old it higher in preclinic compartion to clinic year level and Item8 "i think my teeth are getting worse deposite my daily brushing,all Item 9,12,,16and 19 indicated clinic year have higher score than preclinic year level.

Cretically: Item14 and 15 showed that only a small percentage of respondent motivated to regular periodic cheek up and the gingivitis are preventable disease,that indicate regulare chek up and plague control are critical behavour to maintain proper oral health .

Finaly,knowledge , attitude and behavour score increases as the level of dental education progressed

Conclusion

The study found a steady improvement in oral health knowledge, attitudes, and behaviours among dental students from the first to the fifth year at Gherian University. HU-DBI scores and sub-scores for knowledge, attitude, and behaviour all increased with academic progression, indicating the positive influence of dental education and clinical exposure. However, specific items related to gum disease prevention, delayed dental visits, and some preventive behaviours remained suboptimal, suggesting that these areas require targeted reinforcement. The results confirm that clinical students generally exhibit better oral health practices than preclinical students, but the presence of persistent gaps highlights the need for continuous and practical oral health education throughout all years of study.

Results summary

1. HU-DBI mean scores increased from **7.3** (first year) to **8.8** (fifth year).
2. Knowledge scores rose from **3.4** to **4.1**.
3. Attitude scores showed a moderate increase from **1.9** to **2.3**.
4. Behaviour scores improved from **2.6** to **3.2**.
5. Items with the largest improvements were linked to correct brushing practices and awareness of the role of oral hygiene in disease prevention.
6. Items with lower improvement involved delayed dental visits and periodontal disease prevention knowledge.

Recommendations

1. Integrate more practical, behaviour-focused oral health training in early years.
2. Reinforce preventive strategies related to gum disease and regular dental visits.
3. Encourage peer-to-peer education between clinical and preclinical students.
4. Use HU-DBI results annually to track progress and adjust curriculum.
5. Promote patient-education skills early to strengthen students' role as oral health advocates.

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Auther would like to think all the students who lok part in the present study,perpetual charity to spirit of my father, mother and brother

QUESTIONNRE

Dear students

The purpose of this study is to improve your knowlege, attitude and behaviour regarding oral health Completeing this survey is completiy voluntary,you answers will not affect your score, your participation is important to us and is essential to the completion of the survey.

I. Demographic data:

1.**Age**.....(Must be in years without months)

2**. Gender.**.....(Male, Female)

3.**Grade**…1 *First grade 2. Second grade 3. Third grade 4 Fourth grade 5 Fifthgrade*

4. Parents eduction;

Father's Eduction;

Primary school secondary school High school unvirsty Don't know

Mother's Education:

Primary school secondary school High school university Don't know.

5. If any yourFamily members in the health field 1. Yes 2. NO

II.

1.How often do you brush your teeth

Once a day twice aday three-time aday after every meal

2.How often should you change your toothbrush

Every 3 months Every 6 months 1 year 2 year never

3.How often do you floss your teeth

Dont use it once daily twice daily once or twice in a week

4. How often do you consume sweets andjankfood (candies, chocolates,sweet beverages elc...)

Every day once aweek few times aweek once a month rarely

III Hiroshima University –Dental Behavioural Inventory (HU-DBI)

1. I dont worry much about visiting the dentist A. Agree B. Disagree

2.My gum tends to bleed when i brush my teeth. A. Agree B.

Disagree Agree 3.I worry about the color of my teeth.

4.I have noticed some white sticky deposits on my teeth.

Disagree Agree 5.I use a child sized toothbrush.

6.I think that i cannot help having false teeth when i am old. Agree

Disagree7.I am bothered by the color of my gum. Agree

8.I think my teeth are getting worse deposite my daily brushing. Agree

9. I brush each of my teeth carefully. Agree

10.I have never been taught professionally how to brush. Agree

11.I think i can clean my teeth well without using toothpaste. Agree
12. I often check my teeth in a mirror after brushing. Agree
13.I worry about having bad breath. Agree
14.It is impossible to prevent gum disease with toothbrushing alone.
15.I put off going to the dentist until i have atoothache. Agree
16. I have used a dye to see how clean my teeth are.
17.I use a toothrush which has hard bristles
18.I don't feel I've brushed well unless i brush with strong strokes
19.I feel I sometimes take too much time to brush my teeth.
20.I have had my dentist tell me that I brush very well.