



Knowledge, Attitude and Awareness of the Role of Nutrition in Oral and Dental Diseases among Undergraduate Students of a Dental Teaching Institution in Sangareddy District

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KEYWORDS	ABSTRACT:
Oral Hygiene, Nutrition Proper Diet Knowledge Attitude Awareness	<p>Without good oral and dental hygiene, there can be no health. A Robust mouth is necessary for overall well-being. What exactly does this remark signify, even though it may be well known to all of us? Less often than not, oral health, or the condition of our mouths, is really significant. General health is vital for our overall psychological well-being and experience of life, as demonstrated by this significant indicator.</p> <p>Untreated tooth decay, commonly referred to as cavities, is the most common ailment in the world, while being mostly avoidable. Maintaining our oral and dental health is crucial when considering the possible negative effects of untreated dental disorders, such as pain, diminished quality of life, missed school days, broken family relationships, and lower productivity at work. This article emphasizes about the knowledge, attitude, and awareness of the role of nutrition in oral and dental diseases among private dental undergraduate students of a dental teaching institution in Sangareddy District. Majority of the dental undergraduate students were well aware with the knowledge about the importance of nutrition in maintaining good oral health and hygiene essential for overall health.</p> <p>A total of 200 dental undergraduate students participated in the study - 90% of respondents were aware that oral health is essential to general health. 85% correctly identified tooth decay as the most common preventable oral disease. 92.5% recognized the protective role of fluoride in dental care. 75% reported that they brush their teeth twice daily, and 60% visited a dentist at least twice a year. While 85% abstained from tobacco, only 45% flossed regularly. 80% expressed willingness to adopt healthier behaviours to improve oral health. Half of the respondents (50%) reported assisting others, like the elderly or disabled, with oral hygiene</p>

A HEALTHIER MOUTH: WHAT IS ITS MEANING?

The oral cavity, sometimes known as the mouth, connects the throat to the lips. It is essential for people of any age to

have healthier mouths and functioning teeth since teeth are necessary for basic human functions including respiration, communication, and chewing. In good health, mouth tissues are moist, odourless, and painless. In addition to the teeth, a



properly functioning mouth also has healthy gingival tissue, commonly referred to as the gums, and the supporting bone known as the periodontium. The gingiva may differ in coloration between pale pink to highly pigmented, and its pattern and colour might vary from person to person. Healthy gingiva is firm, not swollen or red, and does not bleed when brushed or flossed. In an appropriate oral tradition, there will be no untreated tooth decay. Untreated dental deterioration and masses, bleeding from ulcers, and unusual colours on the surface of the tongue, the cheeks, or gums are not present in a mouth that is healthy. Teeth should not be crooked if they are firmly attached to the gingiva and bone.

Nutrition plays a significant role in growth and development, prevention of infection, protection from chronic diseases including cancer. This is true even to oral and dental problems as well. Under-nutrition which is still a major problem in our country would result in subnormal cranio-facial development, improper development of teeth, delays and defects in eruption and so on. The oral epithelium in a malnourished child would be atrophic and so on. The oral epithelium in a malnourished child being atrophic and thereby prone to ulcerations and effect of saliva decreases further increasing the risk of infection. Incidence of periodontal disease is also frequent in the malnourished. There are also issues of concern like the presence of a chronic focus of infection which enhances inflammatory cytokine production which in turn contributes to endothelial damage and risk of atheroma (plaque) formation in the blood vessels. Micronutrient deficiencies in the form of inadequate Vitamins like Vitamin B2 (Riboflavin) and Vitamin B12 (Cobalamine) are well known to result in various forms of stomatitis. Furthermore, stomatitis has also been connected to deficiencies in other B complex of vitamins, including - B6 (*Pyridoxine*), B1 (*thiamine*) and B9 (Folic acid).

Dietary-related dental conditions include decay in the mouth, enamel developmental issues, chipping of teeth, and periodontal gum disease. Micronutrients with antioxidant potential like Zinc, Vitamin C, Beta carotene etc. would promote oxidative damage to the dental tissues. Because of its antioxidant qualities and function in preserving and mending healthy connective tissues, vitamin C may have a connection to periodontal disorders. Periodontal disorders are also linked to deficits in vitamin D.

The relationship between calcium intake and periodontal diseases may be due to the significance of calcium in building the density in the alveolar bone that supports the teeth.

Breast feeding is now indicated for an initial group of 6 months to ensure a proper growth and to lessen the possibility of infection and malnutrition in newborn and infants. While brain development is also improved in breast fed infants, early childhood caries is also found to be prevented by breast feeding though this issue is still controversial. The post eruption causes of tooth decay are in connection with the higher sugar intake additional to erosion due to acidic beverages.

Fluoride is most effective in dental caries prevention when a low level of fluoride is constantly maintained, however many parts of India have unacceptable levels of ground water fluoride leading to fluorosis which cause dental mottling and dental fluorosis.

The habit of chewing betel quid and its association with oral sub mucous fibrosis (OSMF) is well established. The advent of new chewing materials like pan masala, ghutka, etc. have made it worse. Our study found that those who use pan masala causes oral sub mucous fibrosis much earlier than those used to traditional chewing. This is probably because Beta carotene rich betel leaf is absent in pan masala. Tobacco chewing or smoking is the major contributor to oral cancer. Studies on reverse smokers have shown that with antioxidant vitamins there was a reversal of the pre neoplastic lesions. Just as in pan masala, ghutka which are in a ready to chew form of tobacco have increased the frequency of oral cancers to the extent that it occurs earlier and in young people. Tobacco surpasses the way the immune system responds to an oral infection, which hinders the recovery process after oral surgical procedures and with inadvertent injuries, accelerates diabetics' periodontal deterioration and it has a detrimental effect on the cardiovascular system. Furthermore, tobacco greatly increases the risk when combined with areca nut and alcohol causing a synergistic effect. The majority of tobacco use's causes oral side effects lowering the quality of life; including something as basic as halitosis, as complex as oral birth defects, as common as periodontal diseases or as troublesome as complications during wound healing. With associated diabetes or as undesirable as issues that arise when a wound heals. With associated diabetes the prevalence of periodontal diseases would only get worse.

The regular consumption of approximately 350 - 400 grams of antioxidant-rich fruits and vegetables are known to minimize the consequences of developing cancers. Malignancies of whole body and oral cavity particularly. Good nutrition and health habits would greatly reduce the morbidity and mortality due to oral ailments.



MATERIALS AND METHODS:

Dental students from MNR Dental College and Hospital in Sangareddy participated in the current study, which is a descriptive cross-sectional study. The MNR Dental College and Hospital's Ethical Committee granted ethical permission before to the study's start, and consenting subjects gave their informed consent. The study involved 200 individuals. This study comprised third- and fourth-year students as well as interns.

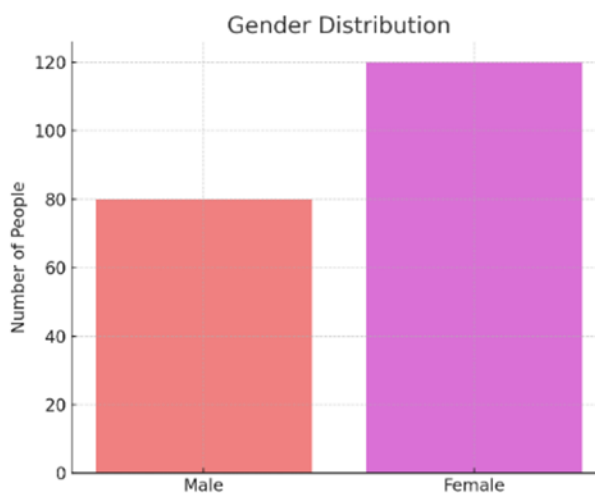
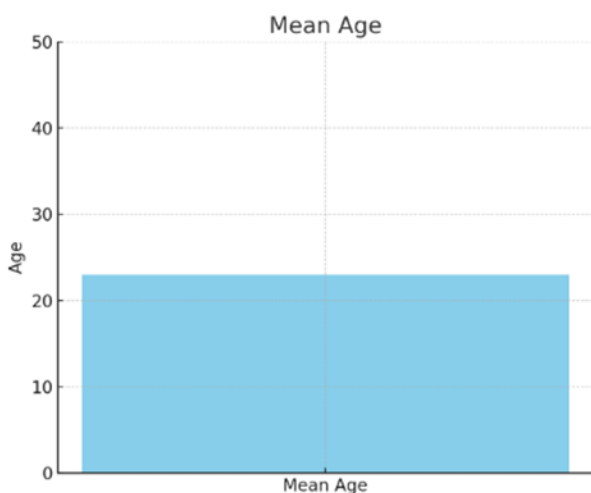
A standardized, self-administered questionnaire was created. Twenty one questions made up the questionnaire, which was designed to gauge dentistry students' understanding of how nutrition and diet affect oral health and hygiene. Responses from the participants were noted. The questionnaires were distributed to each participant. Participants were informed and given an explanation of the

study's purpose. Those who agreed to take part in the poll were asked to finish the questionnaire and sign a consent form. The examiner was present to address any questions that arose throughout the questionnaire's completion. To get as many responses as possible, those who missed work were tracked on consecutive days for a week.

ORAL HEALTH AWARENESS QUESTIONNAIRE

SECTION: PERSONAL INFORMATION

1. Age: _____
2. Gender: Male Female Other
3. Occupation: _____
4. Educational Qualification: _____



A BAR DIAGRAM REPRESENTING THE TOTAL PARTICIPANT COUNT,

MEAN AGE, AND GENDER-WISE DISTRIBUTION.

SECTION: KNOWLEDGE & AWARENESS

5. Which of the following statements is TRUE about oral health?
 - Oral health has no connection to general health
 - Oral health only refers to the teeth
 - Oral health is essential for overall health and well-being
 - Oral health only affects children
6. What is the most common preventable disease affecting the mouth globally?
 - Oral cancer

- Tooth decay (cavities)
 - Gum recession
 - Jaw misalignment
7. Which of the following are signs of a healthy mouth? (Select all that apply)
 - Moist tissues
 - Bleeding gums
 - Firm and pale pink gums
 - Crooked teeth
 8. What is the role of fluoride in dental care?
 - Causes tooth discoloration
 - Helps strengthen enamel and prevent decay
 - Weakens teeth
 - Increases plaque formation
 9. Which nutrients are particularly important for oral health? (Select all that apply)
 - Vitamin C



- Vitamin D
 Calcium
 Iron
 10. What dental issues can poor nutrition cause?
 Enamel development issues
 Gum disease
 Chipped teeth
 All of the above
 11. Do you know role of breastfeeding during the first six months in promoting proper growth, preventing infections and malnutrition, supporting brain development, and potentially reducing early childhood caries, considering the controversial nature of its impact on dental health?
 Yes
 No

SECTION: HABITS AND LIFESTYLE

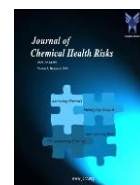
12. How often do you brush your teeth?
 Once daily
 Twice daily
 More than twice
 Occasionally
 13. Do you floss your teeth?
 Yes, daily
 Sometimes
 No
 14. How often do you visit the dentist?
 Twice a year
 Once a year
 Only when I have a problem
 Never
 15. Do you use tobacco in any form (smoking or chewing)?
 Yes
 No
 16. Do you consume alcoholic beverages?
 Yes, regularly
 Occasionally
 No
 17. Do you experience a dry mouth often?
 Yes
 No
 18. Do you or someone you know assist others in oral care (e.g., elderly or disabled individuals)?
 Yes
 No

SECTION: PERCEPTION & ATTITUDES

19. Do you believe oral health is equally important as general health?
 Strongly agree
 Agree
 Disagree
 Strongly disagree
 20. Do you think nutrition plays a role in your dental health?
 Yes
 No
 21. Would you be willing to adopt healthier lifestyle habits (e.g., quitting tobacco, improving diet) to improve oral health?
 Yes
 No
 Not sure

SECTION: ORAL HEALTH KNOWLEDGE

Question No.	Question Summary	Most Selected Option(s)	Number of Responses	% (Out of 200)
5	TRUE Statement about Oral Health	✓ Oral health is essential for overall health and well-being	180	90%
6	Most common preventable oral disease worldwide	✓ Tooth decay (cavities)	170	85%
7	Signs of a healthy mouth (Multiple select)	✓ Moist tissues ✓ Firm and pale pink gums	160	80%
8	Role of fluoride dental care	✓ Helps in strengthen enamel and	185	92.5%



Question No.	Question Summary	Most Selected Option(s)	Number of Responses	% (Out of 200)
9	Important nutrients for oral health (Multiple select)	prevent decay ✓ Vitamin C ✓ Vitamin D ✓ Calcium	170	85%
10	Dental issues from poor nutrition	✓ All of the above	175	87.5%
11	Aware of breastfeeding's role in preventing early childhood caries	✓ Yes	160	80%

SECTION: HABITS AND LIFESTYLE

Question No.	Question Summary	Most Selected Option(s)	Number of Responses	% (Out of 200)
12	Frequency of brushing	✓ Twice daily	150	75%
13	Do you floss?	✓ Sometimes	90	45%
14	Frequency of dental visits	✓ Twice a year	120	60%
15	Use of tobacco	✓ No	170	85%
16	Consumption of alcohol	✓ Occasionally	110	55%

Question No.	Question Summary	Most Selected Option(s)	Number of Responses	% (Out of 200)
17	Experience dry mouth often?	✓ No	140	70%
18	Assist others in oral care	✓ Yes	100	50%

SECTION: PERCEPTION & ATTITUDES

Question No.	Question Summary	Most Selected Option(s)	Number of Responses	% (Out of 200)
19	Oral health is as important as general health	✓ Strongly agree	130	65%
20	Nutrition's role in dental health	✓ Yes	180	90%
21	Willingness to adopt healthier lifestyle for oral health	✓ Yes	160	80%

DISCUSSION:

The information gathered from 200 participants offers a thorough understanding of the present state of oral health knowledge, habits, and attitudes, with results that amply support the study's goals. There is a broad awareness of the connection between oral, dental and general health, as seen by the vast majority of respondents (90%) correctly identifying that oral health is crucial to overall health and well-being. This is in line with the increasing amount of research that acknowledges the systemic effects of oral problems, including their links to diabetes, cardiovascular illnesses, and adverse pregnancy outcomes.

In terms of specific oral disease knowledge, tooth decay was correctly recognized by 85% of participants as the most prevalent avoidable oral health issue globally. Additionally, 92.5% of respondents agreed that fluoride plays a crucial role in preventing dental cavities and enhancing tooth enamel structure, demonstrating the successful spread of



basic oral health education. It was also remarkable that 80% of respondents accurately identified moist tissues and firm, pale pink gums as markers of good oral health. This implies that the population surveyed had a comparatively high level of health literacy.

The level of nutritional awareness was also good. Calcium, Vitamin D, and Vitamin C were chosen by the majority of responders (85%) as essential nutrients for oral and dental health. Furthermore, 87.5% of respondents accurately linked poor nutrition to a number of oral and dental conditions, such as gum disease, tooth fragility, and problems with enamel growth. Eighty percent of respondents indicated that they were aware of the importance of exclusive breastfeeding for the first six months of life in promoting healthy growth, preventing infections and malnutrition, and possibly lowering the risk of early childhood caries. This demonstrated their understanding of early childhood oral health.

Regarding personal habits, most people said they engaged in positive practices: 60% went to the dentist every two years, and 75% brushed their teeth twice a day. Even while only about 45% of respondents reported flossing every day, this still indicates a significant level of interdental hygiene practice involvement. Significantly, 70% of individuals did not report frequent instances of dry mouth, and 85% of participants reported not using tobacco, both of which are linked to better oral health outcomes. Notably, 50% of respondents said they help others with their oral and dental hygiene, including the elderly and people with disabilities. This suggests that oral care is a community-level activity.

Responses from attitudes were highly consistent with beliefs that promote health. 90% of participants acknowledged the importance of nutrition in preserving oral and dental health, and the majority (65%) strongly agreed that oral health is as important to overall health. Most importantly, in order to improve their dental health, 80% of respondents said they would be willing to change their lifestyle to include better eating habits and stopping smoking. This points to a promising degree of behaviour change readiness that might be used in educational campaigns and public health interventions.

Overall, the results show that participants had a high degree of awareness and a favourable attitude regarding oral health and hygiene, highlighting the success of current oral health education initiatives. These findings lend credence to the study's hypothesis that raising awareness of oral health issues and encouraging good habits might significantly influence population health in general. Targeted interventions are still needed in areas like regular dental check-ups and flossing frequency. The combined

knowledge provides helpful guidance for creating community-specific oral health promotion initiatives.

TIPS REGARDING ORAL HEALTH

Use toothpaste and consume fluoridated water: Fluoride helps strengthen tooth enamel and can prevent tooth decay. Drinking fluoridated water and using fluoride toothpaste are effective ways to incorporate this mineral into your oral health care routine.

Maintaining proper dental hygiene: Twice-daily thorough tooth brushing and flossing are essential for removing plaque, bacteria, and food components that may cause cavities and gum disease.

Regular dental visits: Visiting the dentist on a yearly basis (Twice Annually) is crucial for preventive care, early identification of oral health problems, and professional cleanings.

Avoid tobacco products: Tobacco use increases the possibility of mouth cancer, Loss of teeth, gingival disease and other oral health problems. Quitting smoking and avoiding other forms of tobacco can significantly enhance dental health.

Limit alcoholic drinks: Alcoholic beverages, especially those high in acidity or sugar, can contribute to tooth enamel erosion and decay. Moderation and choosing less harmful options can help protect oral health.

Manage diabetes: Maintaining blood sugar control is crucial for general health and can aid in avoiding consequences like gum disease. Good oral hygiene and regular dental visits are especially crucial for individuals with diabetes.

Address dry mouth: Dry mouth can raise the chance of dental deterioration and gum disease. Managing drugs that result in dry mouth, staying hydrated, and using sugar-free products can alleviate symptoms and protect oral health.

Seek medical attention for alterations in smell and taste: Abrupt alterations in smell and taste can be signs of underlying health issues, including issues with dental health. Consulting a doctor or dentist can help identify and address the cause.

Assist with oral care for those unable to do it themselves: Providing assistance with brushing and flossing for individuals who cannot do it independently is important for



maintaining their oral health in order to preserve their dental health and overall well-being.

Chewing xylitol gum void of sugar: Chewing sugar-free gum with xylitol between meals can stimulate saliva production, which helps neutralize oral acid and shield teeth from deterioration.

Oral Health and Systemic Health Studies increasingly demonstrate the correlation between oral health and various systemic conditions such as heart disease, diabetes, and complications during pregnancy. Poor oral health can exacerbate these conditions, while maintaining good oral hygiene can contribute to better overall health.

Mental Health and Oral Health: Positive oral health doesn't just benefit the body; it's also linked to mental well-being. A healthy smile can boost self-confidence and contribute to a positive self-image, leading to improved mental health and quality of life.

Preventive Measures: Practicing good oral hygiene, including brushing and flossing regularly, along with routine dental check-ups, is essential for preventing oral health problems. These preventive measures not only maintain oral health but also contribute to overall health and well-being.

Healthy Lifestyle Choices: Adopting a healthy lifestyle, which includes avoiding excessive sugar consumption, quitting smoking, and limiting alcohol intake, supports both oral and systemic health. These choices reduce the risk of oral health issues and contribute to better overall health outcomes. By prioritizing oral health through regular dental care, healthy habits, and lifestyle choices, individuals can enhance their well-being, reduce the risk of systemic diseases, and enjoy a healthier, happier life.

CONCLUSION

This study shows that the 200 people who were assessed had a generally good landscape of oral health knowledge, attitudes, and practices. In addition to having solid knowledge of prevalent oral disorders, preventive measures, and the impact of nutrition, the majority showed a good understanding of the significance of oral health in relation to overall well-being. It is encouraging to note that a sizable percentage of respondents said they regularly wash their teeth, go to the dentist, and refrain from using tobacco.

The majority of participants' desire to change their lifestyles suggests that future oral health education and intervention initiatives have a good chance of success. But the survey also pointed out areas that needed work, especially in the areas of dental visitation patterns and flossing practices,

which are still below ideal for a sizable section of the population.

The findings generally indicate the necessity of ongoing oral health promotion public health initiatives, particularly when it comes to highlighting the systemic effects of oral diseases and promoting regular hygiene habits. While addressing behavioral and care access gaps, future initiatives should strive to maintain the high levels of awareness seen. Policymakers, educators, and medical professionals can collaborate to enhance oral health outcomes and, in turn, general health and quality of life in the community by building on these findings.

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