Perception of diet counseling among dental students in India

Vivek Sivakumar, Jithesh Jain, Shreyas Tikare, Shanavas Palliyal, Saheer Kandam Kulangara, Pavan Patil

Department of Public Health Dentistry, Government Dental College, Kozhikode, Department of Dentistry, DM Wayanad Institute of Medical Sciences, Kalpetta, Kerala, Department of Public Health Dentistry, Coorg Institute of Dental Sciences, Virajpet, Karnataka, Department of Public Health Dentistry, Kamineni Dental College, Secunderabad, Telangana, India, 2Division of Dental Public Health, College of Dentistry, King Khalid University, Abha, Saudi Arabia

Abstract

Introduction: Nutrition has always been recognized as an integral part of oral health. However, most dentists do not incorporate diet counseling in routine dental practice. The current study was set to evaluate the knowledge, attitude, and practice (KAP) on diet counseling among dental house surgeons.

Materials and Methods: Interns from four different colleges (under different universities) spread across the four states of South India were selected. Of them, 220 interns who completed the questionnaires were chosen for final analysis.

Results: Of the subjects, 75% agreed that nutrition was a vital component of total health care. However, only 42% of the subjects reported that they had received adequate training in diet counseling. Most of the subjects agreed that diet counseling needed to be emphasized in dental education and only 37% of the subjects expressed their confidence in rendering diet counseling to their patients.

Conclusions: Students possessed not only good knowledge but also a positive attitude toward diet counseling. Lack of confidence and apprehension about financial reimbursement were two main reasons cited as obstacles for the incorporation of diet counseling in routine clinical practice.

Key words: Curriculum, diet counseling, health promotion

Introduction

Nutrition is vital to human development, growth, and the maintenance of health. Nutritional issues, at the forefront of popular culture, are part of the current wellness and health promotion climate. Today, like never before, people are concerned with optimizing their health by acquiring nutritional information and applying it to their daily lives. Yet, with all of the information available in the media, misinformation is also in plenty. Health care professionals frequently neglect inquiries about the patient’s nutritional status and offer little guidance in this area.

The American Dental Association’s 1996 Preventive Health Statement on Nutrition and Oral Health “encourages dentists to maintain current knowledge of nutrition recommendation such as the Dietary Guidelines for Americans as they relate to general and oral health and disease.” The American Dietetic Association concurs by stating that nutrition is an integral component of oral
In the past, the purview of dentistry diet counseling involved advising the patient to reduce consumption of sweets and the frequency of consuming snacks; however, much more is required today. Thus, the nutritional knowledge and attitudes of today’s dental students are of interest because they are indicators of the nutritional skills of tomorrow’s dentists. The knowledge acquired and the attitudes formed by the dental student will be carried with him/her into professional practice and will ultimately influence the quality of preventive dental care delivered to patients. Hence, the current study was set to assess knowledge, attitude, and practice (KAP) on diet counseling among dental house surgeons.

Materials and Methods

The proposed study was submitted to the Institutional Review Board (IRB), Coorg Institute of Dental Sciences and the study was approved (ref: CIDS/ADM/8636/2009). A questionnaire was framed in consultation with experts in the field (which included a dentist and a dietician) and was reviewed again after final changes (10 questions on knowledge, 8 questions on attitude, and 10 questions on practice). Subjects for the pilot study consisted of interns who were on the verge of completion of their rotatory internship (in 1 month from the date of the pilot study) as well as from previous batches who were undergoing their extension postings. The reliability and validity of the questionnaire was checked individually for all the three domains, i.e., knowledge, attitude, and practice and was found to be 0.72, 0.78, and 0.69, respectively. Based on the results of the pilot study, the minimum number of subjects for this study was found to be 210. To ensure maximum possible generalization, interns from four different colleges (under different universities) spread across the four states of South India were invited to participate after obtaining the permission from the respective authorities. Participation in the study was voluntary. A telephone number was also provided for respondents to clear any doubts and confusion regarding the questionnaire. A cutoff date was announced for receipt of the completed questionnaire after which no further forms were accepted.

Questionnaires were distributed to a total of 228 eligible participants. Eight questionnaires were eliminated due to their incomplete nature, yielding a response rate of 96%.

Results

The knowledge of the participants toward diet counseling is depicted in Table 1. Of the subjects, 75%...
agreed that nutrition was an essential component of total health care. However, only 42% of the subjects reported that they had received adequate training in diet counseling. Of the subjects, 6.8% assumed that counseling was synonymous with advice. Meanwhile, 32% of the subjects reported that counseling refers to psychotherapy for individuals whose behavior was neurotic. Majority of the subjects reported rightly that the arch criminal in caries causa is sucrose (64%). Nevertheless, a few subjects answered that it was xylitol that was responsible for caries.

The 5-point Likert scale was used to assess the attitude toward diet counseling. Options of “strongly disagree” and “disagree” were combined, and “strongly agree” and “agree” were combined. Nearly half of the subjects agreed with the statement that good nutrition was essential for oral health; 33.2% disagreed with the statement while 13.2% were neutral toward the statement. Majority of the subjects agreed with the statement that nutrition should be emphasized in dental education and 43.2% disagreed with the statement. A large number of subjects agreed with the statement that diet counseling should be emphasized in dental curriculum. Also, many agreed with the statement that diet counseling was important in dental practice too.

Of the subjects, 30% reported that they took dietary history in the routine practice. Also, 39% reported that they gave dietary advice to their patients. Only 37% of the subjects expressed their confidence in rendering diet counseling to their patients [Table 3].

**Discussions**

As early as the 1960s, health educators were aware of the importance of nutrition education for health professionals. Conferences on the teaching of nutrition in medical and dental schools were held in the United States in 1962 and 1965, respectively. Participants from
Historically, the focus of nutrition education in both medical and dental schools has been on disease management; however, in consistence with the rest of health care today, the focus should be on health promotion, disease prevention, and comprehensive care. As such, there is sufficient evidence to support the need for competency in basic nutrition care by physicians and dentists. In contrast with physicians who typically see patients because of illness, dentists see patients regularly for health maintenance. Thus, the dental team members can be considered as important “gatekeepers” for recognizing dietary risk and referring patients to dietitians and physicians for further care when indicated. These visits provide a unique opportunity to integrate lifestyle management, such as diet, as a component of oral hygiene education.

The dental students of today are the dentists of tomorrow. The knowledge gained and the attitudes formed by a dental student with regard to nutrition will be carried by him/her into private practice, and will ultimately influence the care delivered to his/her patients. The dental student’s nutritional knowledge and attitudes are shaped, in part, by the degree of emphasis, given the subject in the dental school curriculum, current research findings, and the fascination with nutrition that exists in contemporary society. Hence, the house surgeons/interns were chosen as the study subjects for this study as their answers would reflect all that they had gained through the 4 years of training received at the dental college. In fact, the topic of the nutrition curriculum in a dental school cannot be considered in various health-related fields expressed repeatedly the importance of nutrition in the dental and medical professions. In the recent years, the importance of oral health has received increasing recognition as research has defined relationships between oral and systemic diseases.

### Table 2: Distribution of study subjects according to their attitudes toward diet counseling (percentage-wise distribution)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Uncertain</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good nutrition is important to dental health</td>
<td>22.7</td>
<td>10.5</td>
<td>13.2</td>
<td>27.3</td>
<td>26.2</td>
</tr>
<tr>
<td>Nutrition should be emphasized in dental curriculum</td>
<td>10.5</td>
<td>30.0</td>
<td>17.7</td>
<td>28.6</td>
<td>13.2</td>
</tr>
<tr>
<td>Incorporating diet counseling in the routine dental practice is important</td>
<td>5.0</td>
<td>27.2</td>
<td>22.0</td>
<td>32.2</td>
<td>14.0</td>
</tr>
<tr>
<td>The advice of a registered dietitian or nutritionist can be very helpful to</td>
<td>14.5</td>
<td>24.5</td>
<td>20.0</td>
<td>28.2</td>
<td>12.7</td>
</tr>
<tr>
<td>a dentist in planning nutrition education for his/her patients</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The dentist should refer patients with physical signs of malnutrition to a</td>
<td>8.2</td>
<td>23.6</td>
<td>22.3</td>
<td>23.2</td>
<td>22.7</td>
</tr>
<tr>
<td>physician</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintaining healthy mouth is an individual responsibility</td>
<td>34.1</td>
<td>13.2</td>
<td>12.3</td>
<td>20.5</td>
<td>20.0</td>
</tr>
<tr>
<td>Improving and maintaining health of the mouth is not in your control</td>
<td>21.4</td>
<td>45.0</td>
<td>18.2</td>
<td>11.4</td>
<td>4.1</td>
</tr>
<tr>
<td>Do you think diet counseling should be emphasized in the dental curriculum?</td>
<td>21.4</td>
<td>11.8</td>
<td>18.6</td>
<td>30.5</td>
<td>17.7</td>
</tr>
<tr>
<td>Total attitude score</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Favorable: 34%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate: 34%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Unfavorable: 32%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 3: Distribution of study subjects according to practice with respect to diet counseling (percentage-wise distribution)

<table>
<thead>
<tr>
<th>Statements</th>
<th>Never</th>
<th>Rarely</th>
<th>Sometimes</th>
<th>Often</th>
<th>Always</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you record the history in your clinical practice?</td>
<td>6.4</td>
<td>2.5</td>
<td>30.9</td>
<td>20.9</td>
<td>9.1</td>
</tr>
<tr>
<td>Do you give dietary advice to your patients?</td>
<td>7.3</td>
<td>21.8</td>
<td>29.5</td>
<td>20.9</td>
<td>20.5</td>
</tr>
<tr>
<td>How frequently do you give your patient diet counseling?</td>
<td>6.4</td>
<td>21.8</td>
<td>29.5</td>
<td>20.9</td>
<td>20.5</td>
</tr>
<tr>
<td>Do you counsel your patients carrying high risk for dental caries?</td>
<td>11.8</td>
<td>15.9</td>
<td>30.0</td>
<td>31.4</td>
<td>10.9</td>
</tr>
<tr>
<td>Do you refer your patients to a dietitian or a nutritionist if needed?</td>
<td>7.3</td>
<td>32.3</td>
<td>36.8</td>
<td>16.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Time is a constraint for diet counseling</td>
<td>10.9</td>
<td>27.3</td>
<td>25.5</td>
<td>26.8</td>
<td>9.5</td>
</tr>
<tr>
<td>Patient compliance is a constraint for diet counseling</td>
<td>7.3</td>
<td>32.3</td>
<td>36.8</td>
<td>16.4</td>
<td>7.3</td>
</tr>
<tr>
<td>Reimbursement is a constraint for diet counseling</td>
<td>8.6</td>
<td>20.9</td>
<td>30.9</td>
<td>28.6</td>
<td>10.9</td>
</tr>
<tr>
<td>Do you have enough confidence in counseling a patient?</td>
<td>Yes</td>
<td>35</td>
<td>No</td>
<td>30</td>
<td>Not sure 35</td>
</tr>
</tbody>
</table>

S J Oral Sci Vol 3 No 1

January 2016
isolation but can only be understood in the broader context of how clinical nutrition and counseling are viewed and accepted by the future dentist. This study was set to explore the same.

A majority of the subjects agreed with the statement that nutrition was an integral part of total health care. However, most of them reported that they did not receive adequate training on diet counseling. Similar findings have been reported by Shah et al.\(^\text{[12]}\) in whose study a majority of the subjects reported lack of adequate training for diet counseling. Most of the students (64%) reported correctly that the arch criminal of caries was sucrose. Also, it is to be noted that 2% of the subjects answered xylitol as the main cause caries. Thus, the findings revealed that at least 50% of the students responded correctly to a majority of the questions and they possessed sufficient knowledge about the diet-related factors affecting dental health.

Most of the participants agreed that good nutrition was important for dental health and were of the opinion that nutrition and diet counseling needed to be emphasized in the dental curriculum as well as in routine practice. From Table 2, it can be inferred that a majority of the subjects did have a positive attitude toward incorporating diet counseling in dental education; similar findings have been reported by Carole et al.\(^\text{[13]}\) in whose study dental students expressed a generally favorable attitude toward nutrition and nutritional counseling of their patients.\(^\text{[14]}\)

A large number of subjects reported recording diet history in their routine clinical practice. Of the subjects, 42% reported that dietary advice was sometimes rendered to the patients while a few rarely did the same [Table 3]. An interesting finding of this study was that lack of reimbursement was set as a major constraint in extending dietary counseling to the patients for a greater number of the subjects. Also, only 35% of the subjects expressed their confidence in rendering dietary advice to the patients. Lack of confidence and apprehension about financial reimbursement were the two main reasons that were cited as obstacles for the incorporation of diet counseling in routine clinical practice. Lack of reimbursement is not a justification to eliminate dental diet counseling from the routine dental practice. It is a preventive intervention as essential as providing oral self-care instructions to ensure behavior modification in the prevention of disease.

A correlation analysis revealed a positive relation between knowledge and attitude, and attitude and practice. A negative correlation was found between knowledge and practice; however, the findings were not statistically significant. Thus, it can be concluded that the students possessed not only good knowledge but also a positive attitude toward diet counseling.

Currently, the duration of undergraduate dental training in India is 5 years including 1 year of compulsory internship. The students rotate through various dental specialties after the completion of the formal coursework and examinations are held during the first 4 years of the program.

During the first 2 years of the program, students enroll in a core curriculum that includes human anatomy, human physiology, biochemistry, pathology, microbiology, pharmacology, and dental anatomy. In the third and fourth years, apart from classes corresponding to courses in the core curriculum that include general medicine, general surgery, and all dental specialties, students complete rotations in various clinical departments. They typically spend a fixed period of time at each rotation (usually 1 month) to hone their clinical skills before moving on to other departments. At the end of each year of the program, the clinical skills and theoretical knowledge of each student are evaluated through practical patient-based exams, oral exams, and written exams.\(^\text{[15]}\) All these phases and systems provide an excellent opportunity to incorporate diet counseling among the graduating dentists.

Thus, an integrated approach needs to be considered for successfully incorporating diet counseling into the students’ training program. Given the fact that health education and tobacco cessation are actively being carried out by the Department of Public Health Dentistry, training for diet counseling should also be incorporated in the practical work of the same department.

Incorporating diet screening in dental practices has many benefits. First and foremost, it provides another critical component of the comprehensive health evaluation of the patient. Other positive outcomes are numerous and include improved oral and overall health, early detection of diet and nutritional problems, improved probability of successful treatment, better wound healing and tissue resistance, and increased communication with patients.\(^\text{[16]}\)

Our search of the literature shows very limited studies in this arena and to the best of our knowledge, this is the first of its kind. Hence, comparisons with previous studies were limited.
Vivek, et al.: Diet counseling as perceived by dental students

Conclusion and Recommendations

A few findings and recommendations from our study include:

- The impact of nutrition on dental education and clinical practice has created a greater awareness of the need for mainstream dentistry to form liaisons with other professionals in the health care delivery system.
- Extensive diet counseling beyond the realm of dental practice must be referred to a medical doctor and/or a registered dietitian.
- Given the time-consuming nature of diet counseling and the absence of professional nutritionist/dietitians, it is suggested that patients should be referred to trained dental hygienists for diet counseling.
- The challenge is to make nutrition, dietary assessment, and guidance an integral part of routine dental practice.
- The dental curriculum in India is spread over 5 years. The initial 2 years of training focus on the basic sciences. In the third and fourth years, the students are exposed to the clinics simultaneously with the theoretical knowledge. During the internship, the students are trained under direct supervision from the faculty. All these phases provide an excellent opportunity to incorporate diet counseling in their practice.
- Inclusion of diet counseling in the dental curriculum and improvisations in the teaching methodology should be strongly considered by the authorities.

Conclusion

In conclusion, while a skillful technician may reconstruct teeth very successfully in terms of aesthetics, it is only an oral doctor who can truly improve a patient’s dental health. As the primary care provider for the oral cavity, the dental professional should screen patients to determine nutrition risk and integrate the findings in the treatment plan. The patients of tomorrow should expect no less.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

References