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Original Research Article

**Knowledge, attitude and practice of Dietary Counselling amongst Dental professionals in Davangere City, Karnataka, India**

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Department of Public Health Dentsitry,  
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Karnataka 577004 India**\*Article History:****Received:** 16/02/2017**Revised:** 25/02/2017**Accepted:** 28/02/2017**DOI:** <https://dx.doi.org/10.7439/ijbr.v8i3.3963>**Abstract****Introduction:** Nutrition counseling has an important place in the dental care setting given the clear relationship between dietary factors and dental caries and the association between obesity, diabetes and periodontitis. Diet and nutrition impact oral health and consequently should be considered during dental exams and treatment planning.**Aim and Objectives:** The aim of the study is to analyze the knowledge, attitude and practice amongst dental professionals in Davangere City, Karnataka, India.**Materials and Methods:** A cross-sectional study was conducted amongst 236 dental professionals in Davangere City and data was collected by means of a questionnaire. The questionnaire consisted of 11 relevant questions with demographic data. Chi Square test and descriptive statistics was done to analyze the data using SPSS v21.**Results:** Around 260 questionnaires were distributed, out of which, 236 were returned with completely filled responses with a response rate of 90.76 %. The study showed that 83.5% participants considered nutrition to be a key element of a healthy mouth. Also, around 90% of the participants were in support of evidence based dietary counselling playing a role in improving the efficiency of their routine practice. Only, little over 25% had been a part of continuing dental education program on dietary counselling.**Conclusion:** It can be concluded that even though most of the participants agreed to the importance of dietary counselling in the dental curriculum and also in the incorporation of the same in routine dental practice, but a very small amount actually practiced dietary counselling in their routine practice.**Keywords:** Knowledge, Dietary Counselling, Dental Professionals.**1. Introduction**

There is a famous proverb - "Mouth is the gateway to body". This simple statement explains and highlights the importance of optimum oral health in maintaining the overall systemic health of an individual. The World Oral Health Report (2003) stated clearly that the relationship between oral health and general health is proven by evidence.[1] There are many evidences that suggest that dietary habits and patterns are highly influenced by the oral condition of an individual. Dentists deal with the "mouth" and what goes in it hence they are in a strategically important position to influence and improvise the eating habits of patients and healthy individuals.

Dietary constituents exert their local effects by influencing the metabolism of the oral flora and by modifying salivary flow rates and, in-directly, the qualitative aspect of salivary secretions. The association between dietary factors, adverse oral health outcomes and their contributory effect on the systemic well-being is multifactorial and complex with inter-related pathways between dietary intake (food consumptions), nutritional status (body composition, biomarker levels of micronutrients) and lifestyle behaviors. It is also a very well established fact that oral signs and symptoms often

constitute the presenting complaint in patients with nutritional disorders.

Nutrition counselling has an important place in the dental care setting given the clear relationship between dietary factors and dental caries and the association between obesity, diabetes and periodontitis.[2-4]

Nutritional counselling can be defined as a cooperative mode of interaction between the patient and health care provider aimed at assisting patients in adopting healthy dietary behaviors associated with improved health outcomes.[5] Diet and nutrition impact oral health and consequently should be considered during dental exams and treatment planning.[6]

Dentist around the globe are not only responsible for establishing the proper function of the oral structures of an individual but also for the enhancement of the overall health and prevention of disease per se. Dr. Slavkin, Director of the National Institute of Dental and Craniofacial Research in the United States, recently urged dentists to become more active in promoting the overall health of their patients.[7]

He pointed out that in addition to their credibility within the community, dentists are strategically positioned to reach a large number of the general public, under less urgent conditions than physicians, simply through regular appointments with their clients: a situation conducive to consultation, education, discussion and motivation with respect to healthy living.

As in any other area of clinical practice, providing dietary advice to patients is likely to be more effective when the whole dental team is actively involved.[8]

In 2009 the American Dental Association (ADA) resolved to continue gathering evidence and information concerning associations between diet, nutrition, and oral health and to support collaborative efforts with other health professionals.[9]

This changing perception and understanding is reflected in the 2020 Healthy People Objectives where oral diseases was added to the list of health risks associated with poor nutrition.[10]

Additionally, the ADA has recently resolved to ensure that “issues specific to nutrition and oral health, as well as the systemic and oral health relationship be incorporated into educational materials,” and continuing educational courses for dental professionals.[9]

Reviews of oral health education and promotion interventions have highlighted the limited number of high quality studies aimed at altering diet to promote oral health.[11-15] With this background, the study was conducted to assess the knowledge, attitude and practices towards dietary counselling amongst dental professionals in Davangere City, Karnataka, India.

## 1.1 Objective

The aim of the study is to analyze the knowledge, attitude and practice amongst dental professionals in Davangere City, Karnataka, India.

## 2. Methodology

### 2.1 Study design and population

A cross sectional descriptive study was conducted in May 2015 among 236 dental practitioners in Davangere City. The list of interns, post graduates and teaching professionals was obtained from the office of the respective Colleges in Davangere City. Along with this private practitioners were also approached to participate in the survey.

### 2.2 Ethical clearance

The study protocol was reviewed and approved by the Institutional Ethical Committee of College of Dental Sciences, Davangere City. Those willing to participate in the survey were requested to fill in the consent form and complete the questionnaire.

### 2.3 Pre-testing of the questionnaire

Questionnaire were administered to a panel of seven academicians and a convenience sample of 15 dental professional were interviewed to gain feedback on the overall acceptability, validity and reliability of the questionnaire in terms of length, language clarity, time, and feasibility of dentists completing and returning it. Based on the opinions expressed a mean Content Validity Ratio (CVR) of 0.82 among academicians and Cronbach's coefficient of 0.89 in dentists was found. Face validity was also assessed and it was observed that 93% of the participants found the questionnaire to be easy.

### 2.3 Administration of Questionnaire

A self-administered, structured questionnaire written in English and validated through a pilot survey included 11 close ended questions on:

- 1) Knowledge about diet, balanced diet, nature, type and frequency of diet. The influence of diet on oral structures, its effect on overall health of an individual was also assessed along with its effect on oral diseases like dental caries, periodontal diseases, malocclusion and cancer.
- 2) Practices about maintenance of dental records, identification, collection, presentation and evaluation of dental evidences and attitude of the practitioner towards maintenance of dental records and evidences.

Dentists were visited by a single investigator, and all available and willing participants were given the questionnaire on the day of visit. Participants were asked to respond to each item in the questionnaire by choosing the most appropriate alternative. Confidentiality and anonymity of the respondents were assured.

## 2.4 Statistical analysis

The data was analyzed using the Statistical Package for Social Sciences version 21 software. Descriptive statistics was used to summarize the sample and responses of the questionnaire. Chi square test was used for statistical analysis. Level of significance was set at  $p \leq 0.05$ .

## 3. Results

About 260 questionnaires were distributed, out of which 236 were returned with completely filled responses with a response rate of 90.76 %. The mean age of the participants was 28.72 years, with the range of 22 to 68 years. The details of participants according to the age, gender, qualification, years of experience and type of practice has been given in Table 1.

The frequency distributions of different questions have been mentioned in Table 2. As mentioned in the table, most of the people (83.5%) knew that nutrition is the key element of healthy mouth. Also, around 90% of the participants were in support of evidence based dietary counselling playing a role in improving the efficiency of their routine practice. But, it was seen that approximately half of the study participants (47.9%) prescribed the nutritional supplement on when necessary.

Table 3 depicts the Chi square distribution of different questions based on the knowledge, attitude and practice of dietary counselling amongst dental professionals.

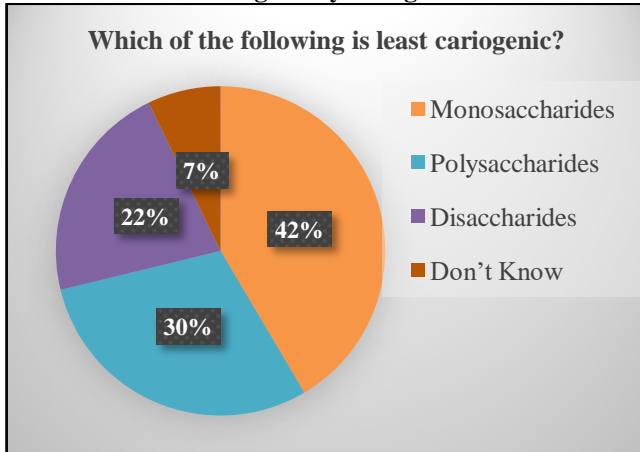
**Table 1: Distribution of the study subjects according to age, gender, qualification, type of practice and years of experience**

Characteristic	Groups	Number	Percentage (%)
Age	20-29 Years	179	75.8
	30-39 Years	37	15.7
	40-49 Years	12	5.1
	> 50 Years	8	3.4
Gender	Females	120	50.8
	Males	116	49.2
Qualification	BDS	38	75.8
	MDS	99	41.9
	Intern	99	41.9
Type of Practice	Private	34	14.4
	Institutionally attached	202	85.6
Years of Experience	0 years	170	72
	1-5 years	27	11.4
	6-10 years	22	9.3
	11-15 years	3	1.3
	16-20 years	7	3
	>20 years	7	3

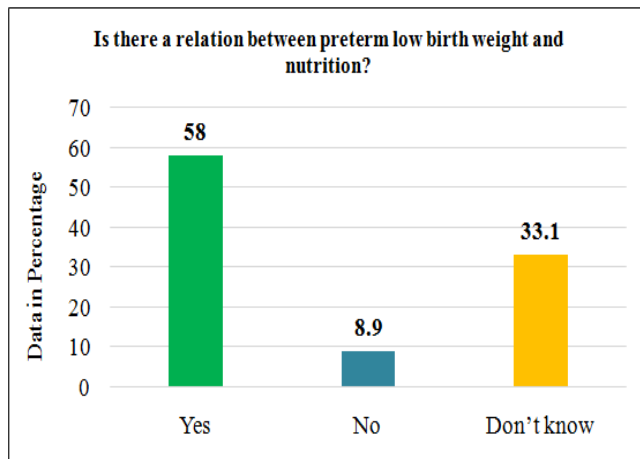
**Table 2: Frequency distribution analysis of the questions**

Questions	Response	Number	Percentage(%)
“Nutrition is a key element of a healthy mouth.”	True	197	83.5
	False	28	11.9
	May be	11	4.7
“The fibrous form of diet is beneficial in preventing dental caries.”	True	205	86.5
	False	21	7.6
	May be	10	0.8
“Diet counselling is an integral part of routine dental practice”	Agree	219	92.8
	Disagree	5	2.1
	Can't say	12	5.1
“Evidence based dietary counselling can improve the efficiency of your routine practice”	Agree	210	89
	Disagree	4	1.7
	Can't say	22	9.3
Do you recommend your patients to take nutritional supplements to support or improve oral health?	Frequently	89	37.7
	Sometimes	114	47.9
	Never	33	14.4

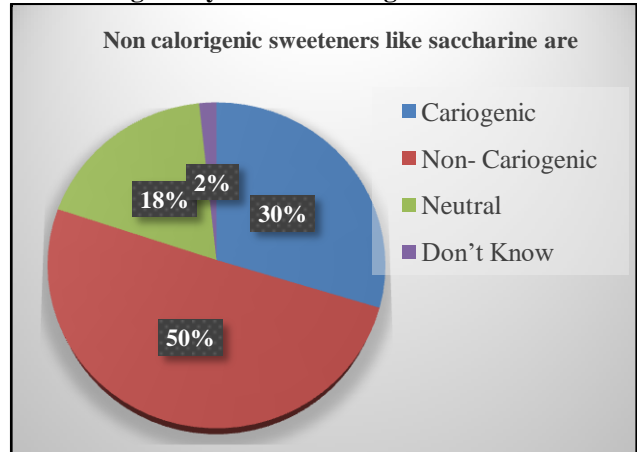
**Fig 1: Distribution of Knowledge regarding cariogenicity of sugars**



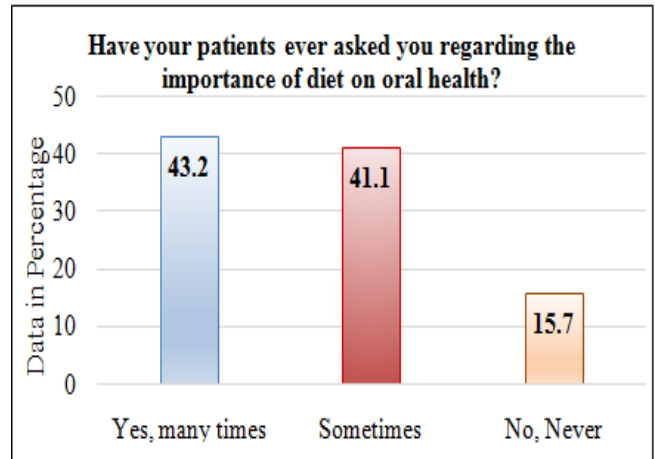
**Fig 2: Distribution of Knowledge regarding the relation between preterm low birth weight and nutrition**



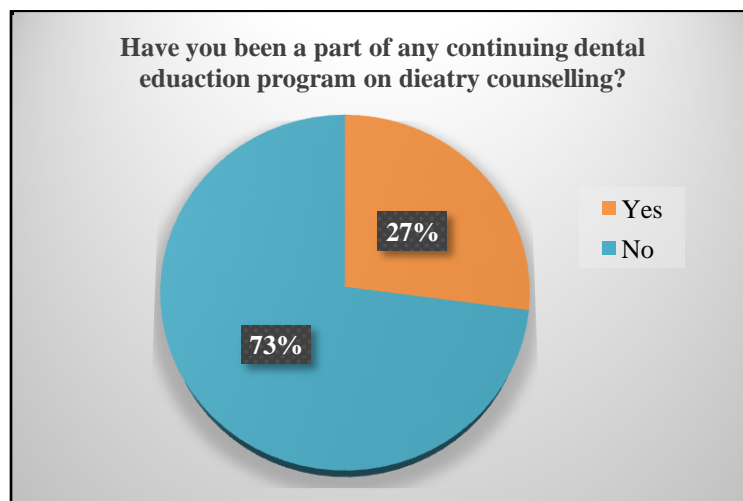
**Fig 3: Distribution of Knowledge regarding cariogenicity of Non- calorigenic sweeteners**



**Fig 4: Distribution of inquiry regarding importance of diet on oral health by the patient**



**Fig 5: Distribution of practice of participating in continuing dental education program on dietary counselling by the dental professionals**



**Table 3: Chi square test analysis of response to knowledge, attitude & practice based questions**

Questions	Response	N (%)	Significance
Which of the following is least cariogenic?	Monosaccharides	98 (41.5)	0.000** (Gender) 0.000** (Qualification) 0.014* (Years of experience)
	Polysaccharides	70 (29.7)	
	Disaccharides	51 (21.6)	
	Don't know	17 (7.2)	
Non caloric sweeteners like saccharine are-	Cariogenic	70 (29.7)	0.020* (Gender) 0.016* (Qualification)
	Non- cariogenic	119 (50.4)	
	Neutral	43 (18.2)	
	Don't know	4 (1.7)	
Have you been a part of any continuing dental education program on dietary counselling?	Yes	64 (27.1)	0.003** (Type of practice)
	No	172 (72.9)	
Have your patients ever asked you regarding the importance of diet on oral health?	Yes, many times	102(43.3)	0.011* (Qualification)
	Sometimes	97(41.1)	
	No, never	387(15.7)	
Do you recommend your patients to take nutritional supplements to support or improve oral health	Frequently	89 (37.7)	0.031* (Qualification) 0.038* (Type of practice)
	Sometimes	113 (47.9)	
	Never	34 (14.4)	
Do you keep journals, books and posters displaying the relation between diet and oral health in the waiting room of your dental setup?	Yes	108 (45.7)	0.034* (Qualification)
	Sometimes	80 (33.9)	
	No	48 (20.3)	

Chi- square test was used; \* p- value  $\leq 0.05$  (Statistically significant)

#### 4. Discussion

Diet counselling has a very important role in dental practice as dentists are the ones that get to interact with patients on a regular basis. Also, as established oral health can have direct or indirect effect on the systemic health. Oral health can sometimes act as a window of the underlying systemic diseased condition.

Counselling components shown to increase dietary changes include a comprehensive dietary assessment, family involvement, social support, group counseling, food interaction (cooking, taste-testing), goal setting and advice appropriate to patient groups and anticipatory guidance. [2,16]

In the present study, the knowledge, attitude and practice of dental professionals was tested. It was interesting to note that most of the participants (83.5%) agreed that nutrition was key element of a healthy mouth. But, a considerable amount (11.9%) has answered in negative, though this data was not statistically significant with any of the demographic factor.

When the participants were asked regarding the cariogenicity of different types of sugar, it was seen that considerably small amount of the study participants (29.7%) knew that polysaccharides was least cariogenic, around 63% had answered otherwise and this finding was statistically significant with gender, qualification and years of experience. Though, articles have substantiated this fact. [17]

When the study participants were assessed on their knowledge about non caloric sweeteners like saccharine, nearly half (50.4%) knew that it is non cariogenic, but

around 30% considered it to be cariogenic and this finding was statistically significant with respect to gender and qualification.[18]

It was interesting to note that most of the study participants (92.8%) considered dietary counselling to be an integral part of routine dental practice. This was in accordance with many articles.[19,20]

It was a very interesting finding that most of the study participants (72.9%) had never attended any continuing dental education program on dietary counselling and this data was statistically significant with type of practice. This could be either due to disinterest, lack of time or lack of such educational programs in that particular area.

It is important for the patients to understand the importance of nutrition in maintaining a healthy mouth, body and lifestyle. In such pursuits, they should be inquisitive regarding their need of dietary counselling or consultation. When asked regarding the inquisitiveness of their patients for the same, most of the study participants (84.4%) said that their patients have asked them regarding the importance of diet on oral health.

When asked regarding the recommendation of nutritional supplements to their patients, almost half of the study participants (47.9%) said that they practice the same as and when needed. This finding was statistically significant with qualification and type of practice. It could be suggested that the participants know the importance of nutritional supplements, but avoid unnecessary prescription of the same.

When asked regarding the practice of displaying journals, books and posters on diet and it's relation with



oral health in their clinical set up, almost half of the study participants said that they don't keep such things in their dental set up. This data was statistically significant with qualification. [21]

As no such study could be found in the literature search which was assessing the knowledge, attitude and practice of dietary counselling in dental professionals, so comparison of the same with other studies was not possible.

## 5. Conclusion

It can be concluded that most of the participating subjects had basic knowledge regarding diet and its importance in oral health. But, they lacked clear understanding of the cariogenic sugars and facts related to the same. It was seen that though most of the study participants agreed on the importance of diet on oral health but most of the study participants had not participated in any educational program. Also, it was disheartening to see that considerably lesser amount of participants practiced dietary counselling on a routine dental practice. It is necessary to increase the awareness regarding nutrition and nutrition counselling amongst dental professionals and the patients as well to improvise the oral health and systemic condition as a whole.

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