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Attitudes and barriers to providing dietary advice; perceptions of dental hygienists and oral health therapists

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Abstract

Objectives: Effective dietary counselling in a dental setting can significantly reduce the risk of oral disease. However, studies suggest that dental professionals are not instigating dietary advice on a regular basis and there is a lack of current information of the barriers experienced that limit the delivery of dietary advice. The aim of this study was to investigate the current attitudes and practice behaviours of dental hygienists and oral health therapists in NSW, Australia, regarding dietary advice, and identify the barriers that limit its delivery.
Methods: A convenience sample of dental hygienists and oral health therapists were surveyed using a mail-out questionnaire. The questionnaire investigated the demographic data of participants, the attitudes and practice behaviours of participants, the perceived barriers and current dietary resources accessed by participants.

Results: Of 987 dental hygienists and oral health therapists, 426 participants responded. The study results suggest that many dental hygienists and oral health therapists have positive beliefs regarding the importance of dietary counselling. However, there are a multitude of barriers preventing the delivery of dietary advice; these include time, patient compliance, patient knowledge of nutrition topics, personal counselling skills and practitioners' knowledge of nutrition.

Conclusion: While dental hygienists and oral health therapists recognise the importance of diet and have positive attitudes toward providing dietary advice to patients, this study identified many barriers preventing implementation in practice. This information may be used to develop targeted strategies aimed at overcomi ng these barriers and improving behaviours.

Clinical Relevance:

Scientific Rationale for study

Whilst there is a clear relationship between diet and nutrition and oral health, there has been little research investigating the attitudes and practice behaviour of dental hygienists and oral health therapists when providing dietary advice, and the barriers they experience that limit its delivery.

Principal Findings

Many dental hygienists and oral health therapists have positive beliefs regarding dietary advice in a dental setting; however, the presence of barriers prevents the delivery of such advice.

Practical Implications

The present study has allowed us to identify the current attitudes and practice behaviour regarding dietary advice and the barriers experienced. Further research investigating such strategies to overcome these barriers to increase the delivery rate of dietary advice is needed.

Introduction:

Oral health related problems are a costly burden to health care systems as well as impacting significantly on an individual's speech, self-esteem, ability to eat, health and quality of life (1). Poor diet and nutrition has a significant impact on oral health status. Diet has a local effect on oral health, primarily on the integrity of the teeth, pH, and composition of the saliva and plaque. Nutrition, however, has a systemic effect on the integrity of the oral cavity, including teeth, periodontium, alveolar bone and oral mucosa. Micronutrient deficiencies may result in an impaired immune status, which can exacerbate any infection or delay healing; further, diet is a recognised risk factor for oral cancer (2).

Poor diet and nutrition play a prominent role in the development of dental diseases, particularly in regards to the formation of dental caries and erosion. Dental caries is the most common disorder affecting the teeth, and the most prevalent chronic disease in both children and adults (3). In 2009, the proportion of children who had experienced decay in their deciduous teeth ranged from 42% for five year olds to 61% for nine year olds. The proportion of children with permanent teeth affected by decay ranged from 5% for six year olds to 58% for fourteen year olds (4). Scientific literature emphasizes that free sugars are the main essential cause of caries development; free sugars include those added to food by consumers or manufacturers, plus those naturally present in fruit juices and honey (5). Acidic foodstuffs and beverages, including fruits and fruit juices, soft drinks and vinegar, play a prominent role in the development of dental erosion, a non-carious, pathological loss of tooth surface due to exposure to acids of intrinsic or extrinsic origin (6). The enamel defects resulting from dental erosion impair the integrity of the tooth, making it more susceptible to dental diseases such as dental caries. Over the last two decades, tooth erosion has become a significant clinical problem (7).

Dietary advice provided by health professionals has the potential to influence patient eating habits (8, 9). However, previous research has shown that there is a disparity between health professionals' beliefs about the importance of diet and nutrition in disease prevention and health maintenance, and the actual delivery of dietary advice (10, 11). Current literature suggests that many health professionals are not providing dietary advice and that the advice often varies greatly between practitioners (11, 12). According to a survey by Wechsler and colleagues that explored the beliefs and attitudes of primary care practitioners about health promotion, less than half of medical professionals routinely ask about diet and exercise (13).

Despite these findings, it has been suggested that health professionals hold positive beliefs regarding the importance of diet counselling (14) and that effective dietary screening and counselling plays a key role in the detection of potential risk factors for nutrition-related problems in patients with chronic disease or conditions (12). These results suggest that there may be barriers present preventing the provision of dietary advice by health professionals. Furthermore, a recent study reported that a dentist's knowledge and skills may not be sufficient for delivery of preventive messages; albeit their attitude towards prevention is one of the greatest predictors of behaviour (15).

Whilst the relationship between diet and nutrition and oral health is well understood, there has been little research investigating the attitudes and practice behaviour of dental hygienists and oral health therapists regarding dietary advice, and the barriers experienced that limit its delivery. Therefore, the aim of this study was to assess the current attitudes and practice behaviours of dental hygienists and oral health therapists within New South Wales, Australia, and investigate the perceived barriers to providing dietary advice.

Study Population and Methodology:

The study was a cross-sectional study involving convenience sampling, and was approved by the University of Newcastle Human Research and Ethics Committee (Approval number: H-2014-0106).

Dental hygienists registered with the NSW Branch of the Dental Hygienists Association of Australia (DHAA), and oral health therapists registered with the NSW Branch of the Dental and Oral Health Therapists Association (DOHTA) were recruited. In Australia, dental hygienists are a registered dental care provider, oral health educator and clinical operator who work in a structure professional relationship with a dentist. They use preventative, educational and therapeutic methods to prevent dental disease in patients of all ages (16). Oral health therapists are also registered dental care providers who provide dental hygiene services, and in addition they can diagnose and treat caries in children, adolescents and young adults (17).

The study was conducted using a mail-out survey where participants were assessed using an original two page, 11-item questionnaire. A small group of academic staff (comprising of dental hygienists and oral health therapists) working at the University of Newcastle pilot-tested the questionnaire and it was modified accordingly. The questions were presented in a 4 or 5-point Likert scale as well as a dichotomous format and took no longer than 10 minutes to complete. The survey assessed four main areas which included participants' demographic data, previous nutrition education and current sources of dietary information, current provision of dietary advice and the perceived barriers and opinions experienced when providing dietary advice.

An information statement and consent form was sent to the two associations asking them to provide pre-printed labels with the names and addresses of all current members. The consent form also requested a written assurance actioning that such a request would not represent a breach of Associations members' privacy or breach any other assurances between the Association and its members relating to the use of members' information.

The subjects were initially contacted through the mail-out survey which included a brief introduction and written synopsis of the project to allow the dental hygienists and oral health therapists to be informed of the nature of the research, with voluntary participation being emphasised. They were given a participant information statement from the principal investigator explaining the purpose of the study, a questionnaire and a reply paid envelope to participate. Completion and return of the questionnaire implied consent.

The data was entered in an Excel database and data analysis was performed using a statistical software package (SPSS for Windows). Tabular summaries of demographic characteristics summarised responses using descriptive statistics.

Results:

The study initially contacted 742 dental hygienists and 283 oral health therapists through the mail out survey. There were 38 'return to sender' which led to a total of 987 members

originally being contacted. Out of those, 426 participants responded, eliciting a response rate of 43.2%. The average age of participants was 35 years, which closely represents the national average of 37.4 for dental hygienists and 46.4 for oral health therapists (16). Of the respondents, 371 were female (87.1%) and 55 were male (13.0%), which also represents the national standards of 94.3% dental hygienists and 96.8 oral health therapists being female (18). Demographic data is presented in Table 1.

The current attitudes and practice behaviours of dental hygienists and oral health therapists are presented in Table 2. The mean and median for each questions response was established and found that whilst the majority of respondents 'agreed' to having the knowledge and skills to provide dietary counselling, they felt 'neutral' in regards to whether they had the confidence and knowledge to provide dietary counselling. The majority of respondents 'agreed' to the notion that dietary counselling is one of the dental hygienists and oral health therapist's responsibilities and that diet is a significant component in oral health. The majority of respondents also 'agreed' that dietary counselling in a dental setting can be effective. However, the majority of respondents felt 'neutral' on whether their patients want more information than they can provide.

The study asked participants to indicate the extent to which a range of factors are barriers to providing effective dietary counselling in the dental clinic setting (Table 3). The barriers most commonly reported were lack of time, patient compliance, patient knowledge of nutrition, personal counselling skills and practitioner dietary knowledge. Compensation and the practitioners ability to identify patients who need dietary advice were less commonly encountered with the majority of respondents replying that they felt 'neutral' for compensation and 'disagreeing' that the ability to identify patients is a barrier.
The study examined the dietary resources currently utilised by the participants (Figure 1). They were asked to provide a yes or no answer to whether they accessed different types of materials. Patient handouts were ranked the highest with 82% of participants accessing them. Journal articles were accessed by 61% of participants, while 55% of participants attended nutrition seminars. Continuing education conferences and nutrition courses designed for dental professionals were accessed by 33% and 26% of participants, respectively. Workshops with nutritionists were accessed by 22% of participants and the nutrition help lines (telephone contacts for advice and support) had only 18% of participants accessing them.

Discussion:

This study explored the attitudes and practice behaviours of dental hygienists and oral health therapists regarding dietary advice provision and the perceived barriers. The results of this study reveal that while the majority of respondents felt they have the knowledge and skills to provide dietary advice, they lacked the confidence and experience to do so. The study also suggests that the respondents have positive beliefs regarding dietary advice with respondents strongly agreeing with the notion that dietary counselling is a role of dental hygienists and oral health therapists and that diet is a significant component in oral health. These results mirror a study of Australian medical practitioners, which concluded that whilst health professionals hold positive beliefs regarding dietary counselling, lack of confidence and experience reduce the delivery rate of dietary advice (12). Lack of confidence and experience may come from practitioners not providing dietary advice on a regular basis due to the barriers encountered. Further research is needed to investigate strategies that would increase practitioner confidence and experience with providing dietary advice. For example, future research could investigate the availability and frequency of counselling courses and seminars in University curricula and continuing professional development programs. By increasing the availability of such courses, the confidence of practitioners in their counselling skills may increase which should in turn, positively impact upon their level of experience; as when they gain confidence to provide dietary advice they may use these skills more readily in practice. Potentially this will increase the delivery rate of dietary advice, as it has been suggested that dental practitioners who were confident in nutrition counselling also appear to provide dietary advice on a more frequent basis (19).

The study revealed that several factors present as barriers to the provision of dietary advice. The majority of respondents felt that lack of appointment time, patient compliance, patient knowledge, personal counselling skills and practitioner dietary knowledge all present as major barriers to the delivery of dietary advice. The results reflect those of previous studies including Kushner, which also found lack of time, poor patient compliance and low practitioner counselling skills to be major barrier to the provision of dietary advice (10). It has been suggested that the presence of such barriers dramatically limit the delivery of dietary advice. A study which assessed the dietary counselling practices of dental hygienists in Oregon, USA, found that only 53% of dental hygienists provided any dietary advice to

patients (19). This implies that despite the positive beliefs regarding dietary advice, the presence of a range of barriers prevents the regular delivery of dietary advice.

Insufficient appointment times were identified as the most frequent barrier to providing dietary advice with 75.12% replying that they ‘agreed’ or ‘strongly agreed’ that it was a barrier. These results mirror a study of primary care practitioners, which found 75% of respondents reporting it to be a common problem (10). Further, a study of Japanese dentists found that dentists who were “less busy” were more likely to provide dietary counselling to their patients (20). Lack of appointment time may be due to the notion that ‘time is money’ where time equals production dollars for the employers and thus, shorter appointment times are favourable as it equivalents to more patients being seen. Patient appointment times for dental hygienists and oral health therapists can vary from 30 minutes to 90 minutes depending on the practice (21). There is a dearth of studies that investigate what percentage of the appointment is spent on dietary advice. Further investigations into time efficient dietary advice strategies that can be implemented for time poor dental professionals are needed to help overcome this barrier and increase the delivery rate of dietary advice.

The current study also revealed that the majority of respondents felt that lack of patient compliance is a barrier to the provision of dietary advice. The study found that 74.88% of participants either ‘agreed’ or ‘strongly agreed’ that patient compliance is a barrier. This result is comparable to a study of primary care practitioners, which identified lack of patient compliance as a barrier to the provision of dietary advice (10). It has been suggested that whilst healthcare providers play a vital role in assisting patients' healthy behavior changes, a lack of understanding of how behaviors change can often result in patient noncompliance (22). The Transtheoretical model, or ‘stages of change’ concept states that behavior change is not stable, rather individuals progress through a series of six stages: pre-contemplation, contemplation, preparation, action, maintenance and termination (22). This model provides insight into people’s readiness to change their oral hygiene behaviours, and its use would aid practitioners in the delivery of oral health messages. Understanding a person's readiness to change could improve the way in which oral hygiene interventions and advice are given in the clinical setting and increase patient compliance (23). Therefore, investigations into strategies to improve practitioner knowledge of the ‘stages of change’ behavior theory and how to implement this when counselling patients are essential. An experiential learning exercise requiring dental students to change their own dietary behaviour has demonstrated an

improved understanding of behaviour change concepts and improved attitudes to provide dietary counselling to patients (24). Such exercises during education and training will help increase interest in providing dietary advice, while also helping students understand the difficulties of behaviour change.

The most common resource reportedly used by dental hygienists and oral health therapists was patient handouts, with 82% of study participants accessing them. This may be due to the cost and accessibility of such resources, as many patient handouts are supplied by dental companies and employers to provide clear and comprehensive advice that is not too lengthy and caters for both high and low reading abilities levels (25). Journal articles and nutrition seminars were also identified as key sources of dietary knowledge. Workshops with nutritionist and continuing education conferences were less frequently accessed and the Nutrition help line was identified as the least common resource used by the study participants. These results indicate that many dental hygienists and oral health therapists are not utilising all the dietary resources available to them. This may be due to a lack of dental nutrition workshops and conferences available or a lack of knowledge of such workshops and help lines that are available to them. Diet and nutrition resources provide practitioners with modern knowledge and counselling skills. This study has revealed that lack of provider knowledge of dietary topics is a barrier to providing dietary advice so it is essential that dental professionals regularly access the available resources in order to provide clear and comprehensive dietary advice. Further research is needed to investigate the availability of such resources to establish whether more courses and workshops need to be established to provide dental professionals with regular and up to date dietary knowledge and counselling skills.

The current study has limitations that should be considered when interpreting the findings. The survey sample was derived from New South Wales, and were all members of the NSW branches of the DHAA and DOHTA. Therefore, the participants may differ from non-members as both associations are elective to join, which may imply that the members may be more proactive and interested in professional development than non-members. However, the sample was comparable to national data on variables such as age and gender with only minor variations. Whilst these findings are applicable to Australia, research is needed internationally to examine global similarities and differences. The dichotomous and Likert format of the questions limits the depth of responses and makes it difficult for participants to

clarify their responses. Then again, a tick-box format ensures easy completion of the survey, which may improve response rates.

The study also relied on self-reporting, and so it is possible that respondents will over-report the frequency of dietary counselling or may not feel comfortable providing answers that present themselves in an unfavourable manor (26). This can only be addressed through observation of participants' behaviour, which presents many challenges and is beyond the scope of this research. Another limitation is the presence of voluntary response bias, where the resulting sample tends to over represent individuals who have strong opinions or interests in diet and nutrition (26). Nevertheless, surveys are a great way to collect a large quantity of information anonymously, and within a short time. The study was also affected by a response rate of 43.2%. It should be noted however that 426 returned surveys is a substantial response, and that the participant demographics were similar to national data, which improves the generalizability of the results. Some members may have been members of both associations and thus, negatively influence the response rate.

Conclusion:

The current study explored the attitudes and practice behaviours of dental hygienists and oral health therapists regarding dietary advice, and the barriers encountered that limit its delivery. The results suggest that whilst many dental hygienists and oral health therapists have positive beliefs regarding the importance of dietary counselling, there is a multitude of barriers preventing the delivery of dietary advice. This knowledge may allow us to create strategies to overcome these barriers and improve the delivery rate of dietary advice. The findings from this study and of any future research have the potential to contribute to reducing the prevalence of nutrition related diseases and prompt the incorporation of effective dietary counselling methods.

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Tables and Figures:

Table 1: Demographic characteristics of study participants

Mean Age (SD)		34.96	(10.96)
Gender			
	Female n (%)	371	(87.09%)
	Male n (%)	55	(12.91%)

Table 2: Current attitudes and practice behaviours regarding dietary advice provision

Question	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean*	Median*
I have the knowledge to provide dietary counselling	1.64%	4.69%	19.01%	57.98%	16.67%	3.83	4
I have the skills to provide dietary counselling	1.41%	8.69%	25.59%	50.00%	14.32%	3.67	4
I have the confidence to provide dietary counselling	0.47%	14.32%	38.97%	32.39%	13.85%	3.45	3
I have the experience to provide dietary counselling	0.23%	15.73%	37.09%	34.27%	12.68%	3.43	3
Dietary counselling is one of the DH/OHT's responsibilities	0.23%	0.70%	6.81%	44.13%	48.12%	4.39	4
Diet is a significant component in oral health	0%	0.23%	2.11%	32.86%	64.79%	4.62	5
Dietary counselling in the dental setting is effective	0%	0.94%	22.77%	45.31%	30.99%	4.06	4
I feel patients want more information than I can provide	3.76%	17.84%	42.49%	27.70%	8.22%	3.19	3

* Scale: 1=Strongly disagree, 2=Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree

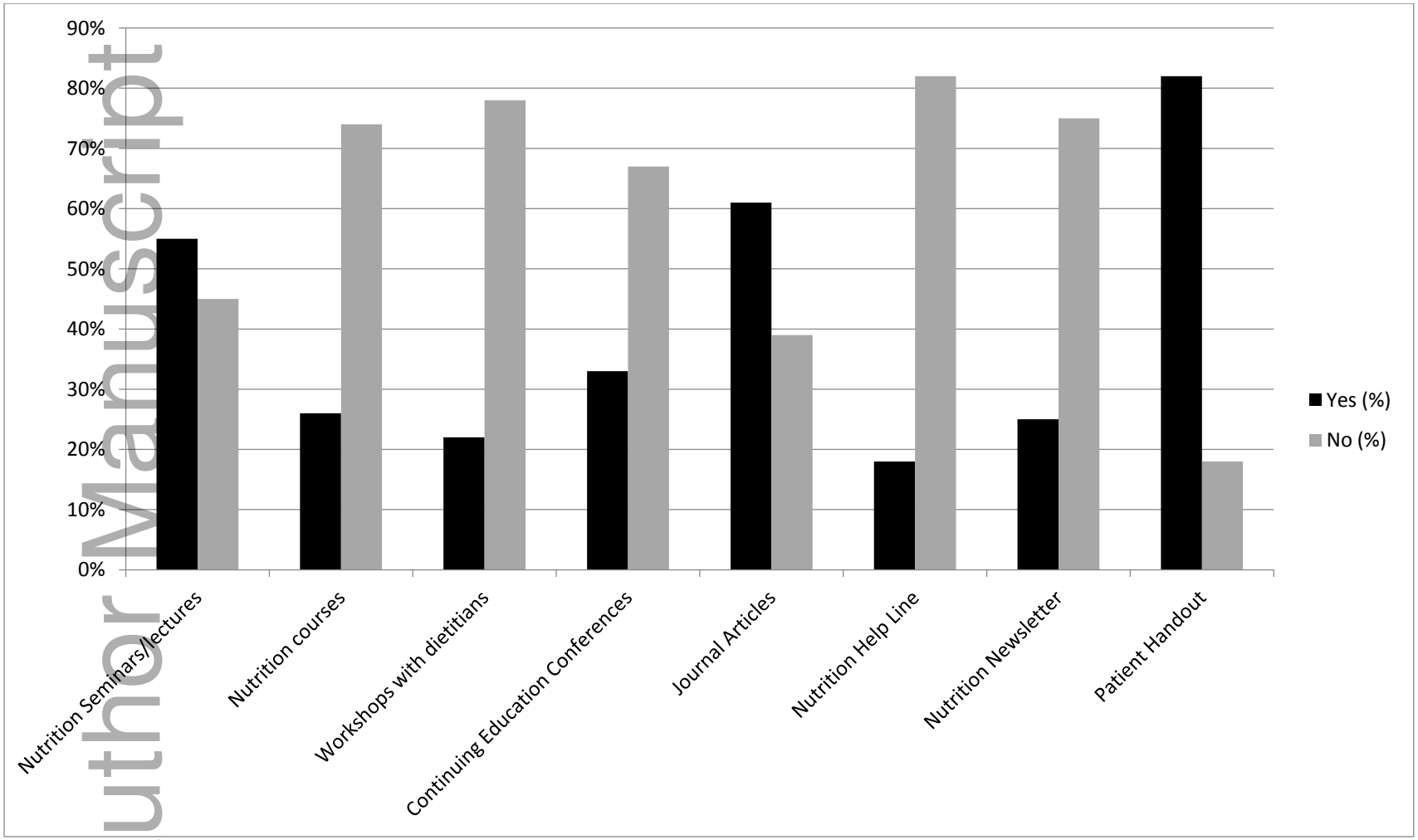
Table 3: Barriers to the provision of dietary advice

Barriers	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	Median

Time	0.70%	8.22%	15.96%	46.95%	28.17%	3.94	4
Compensation (fees/insurance rebates)	1.41%	22.77%	45.07%	20.89%	9.86%	3.15	3
Patient compliance	0.23%	7.04%	17.84%	46.24%	28.64%	3.96	4
Patient knowledge	1.41%	9.39%	34.74%	43.90%	10.56%	3.53	4
Ability to identify patients who would benefit from dietary advice	5.87%	33.33%	26.29%	23.24%	11.27%	3.01	3
Personal counselling skills	2.11%	15.02%	19.25%	46.95%	16.67%	3.61	4
Personal knowledge about nutrition	1.64%	11.74%	21.13%	48.59%	16.90%	3.67	4

* Scale: 1=Strongly disagree, 2=Disagree, 3=Neutral, 4= Agree, 5=Strongly Agree

Figure 1: Dietary resources currently utilised by study participants



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