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Pediatric Dentists' Considerations Concerning Obesity-Related Education for Parents of Young Children: Who Should Educate about What, How and When?

Arianne Swanson DDS, MS

Private practice in Dearborn, Michigan, ariswan@umich.edu

James R. Boynton DDS, MS

University of Michigan School of Dentistry, Pediatric Dentistry, jboynton@umich.edu

Larry B. Salzmänn DDS

Department of Orthodontics and Pediatric Dentistry, University of Michigan School of Dentistry, Ann Arbor, Michigan, salzmänn@umich.edu

Yu-Ju Yang DDS

Department of Child and Adolescent Dentistry, Mott Children's Health Center, Flint, Michigan; Department of Orthodontics and Pediatric Dentistry, University of Michigan School of Dentistry, Ann Arbor, Michigan, Follow this and additional works at: <https://commons.ada.org/journalmichigandentalassociation> vyang@mottchc.org



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Pediatric Dentists' Considerations Concerning Obesity-Related Education for Parents of Young Children: Who Should Educate about What, How, and When?

By Arianne Swanson, DDS, MS; James R. Boynton, DDS, MS; Larry B. Salzmann, DDS; Yu-Ju Yang, DDS, MS; and Marita R. Inglehart, Dipl. Psych., Dr. phil., Dr. phil. habil.

Abstract

Objectives: The percentage of children who are obese has increased over time. The objectives were to assess pediatric dentists' considerations concerning who should provide obesity/diet-related interventions for parents of young children, what should be addressed, how and when, and how educated, knowledgeable, and likely to engage in this behavior pediatric dentists were.

Methods: 210 members of the American Academy of Pediatric Dentistry responded to web-based surveys.

Results: The respondents considered it somewhat important/important for pediatric dentists, general dentists, and dental hygienists (5-point scale with 5=very important: mean=3.88/3.64/ 3.63), but very important for pediatricians and nurse practitioners (mean=4.84/4.69) to engage in obesity-related parent education. Respondents agreed strongly that parents should be educated about the relationship between early childhood caries and diet (mean=4.91) and agreed on education about soft drink and fruit juice consumption (mean=4.23/4.23) and healthy snacking (mean=4.10). They also agreed to refer children between 3-6 years and older than 6 years (mean=3.94/4.00) for obesity counseling and to educate parents about this topic at the first sign of tooth eruption (mean=4.25) and when the child had all primary teeth (mean=4.48). The more positive their attitudes were towards obesity-related referrals, the more they engaged in objective weight determination ($r=0.44$; $p<0.001$), informal data collection ($r=0.60$; $p<0.001$) and diet/nutrition counseling ($r=0.35$; $p<0.001$).

Conclusions: Pediatric dentists agree that they should provide obesity-related diet/nutrition education for parents of young children. The more positive their obesity-related attitudes are, the more they engage in related professional behavior.

Keywords: Pediatric obesity, child obesity, adolescent obesity, pediatricians, dentists, pediatric, parents, health education, dental oral health education, dental child, obesity counseling, diet/nutrition counseling.

Between 2017 and 2020 obesity affected about 14.7 million children and adolescents in the United States.¹ Research showed that obese children and adolescents were likely to be obese as adults and to have an increased risk for negative health consequences such as heart disease, type II diabetes, stroke, several types of cancer, and osteoarthritis.²⁻⁵ According to the 2017-18 U.S. National Health and Nutrition Examination Survey, the prevalence of obesity for children aged 2-19 was 19.3% in the United States.⁶ Among 2- to 5-year old children, the prevalence was 13.9%. Addressing this preventable public health concern requires the coordinated efforts of all primary health care providers.^{2,3,7}

One important question in this context is who pediatric dentists would consider as important in providing obesity-related education for pediatric patients and their parents. Primary care providers were thought of as the most likely providers to screen for obesity and to provide obesity-related education, while other health professionals such as dentists and dental team members were not considered.^{8,9} Given that pediatric dentists offer oral health education for children and their parents, it

is important to consider which role they can play concerning obesity-related education.

Research showed that obesity is related to increased sugar consumption and that increased sugar consumption is associated with an increased risk for caries development.¹⁰ While pediatric dentists provided diet/nutrition counseling related to caries prevention, only 6% conducted weight-related screenings and diet/nutrition counseling.¹⁰ One major reason for not engaging in obesity-related education was their fear of offending parents. However, research showed that many patients wanted to receive support about weight management from their dental care providers.^{11,12} Pilot trials also reported that weight management interventions for children provided by dental care providers were well-received by patients and parents.¹³ These findings should encourage oral health care providers to engage in obesity-related education with parents.

When exploring which obesity-related content should be covered in dental care settings, prolonged bottle feeding beyond 12 months of age¹⁴ and increased sugar consumption^{15,10} were identified as causes for increased dental caries among children. Providing educational interventions that discuss the relationships between diet, caries, and obesity could therefore be important.

While there is research analyzing which type of diet children should consume, there is less research concerning how this information should be provided.¹⁶ Dental care providers often rely on verbal communication when educating parents and children about oral health promotion.¹⁶ However, when parents might have lower oral health literacy, visual information and videos can be helpful.¹⁶⁻¹⁹ Establishing at which age obesity-related information should be presented is also important. The American

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Table 1 — Overview of the background, educational, and practice characteristics

Background characteristics	Frequencies N=210	Percentages
Gender:		
■ Male	97	47.5%
■ Female	107	52.5%
Age	Mean = 49.10	SD = 12.427 Range: 30-70
Ethnicity/race:		
■ European American	122	72.2%
■ Asian American	19	11.2%
■ Hispanic/Latinx	15	8.9%
■ African American/Black	9	5.3%
■ Multi/biracial	3	1.8%
■ Arab American	1	0.6%
Educational characteristics	Mean	SD/Range
Year of graduation from dental school	1999.87	12.849/1968-2019
Year of graduation from pediatric dentistry residency program	2003.82	13.101/1972-2021
Type of residency program:		
■ University-based	31	14.9%
■ Hospital-based	56	26.9%
■ Combined program	121	58.2%
Practice characteristics	Frequencies	Percentages
Primary practice/employment situation:		
■ Solo	66	30.6%
■ Group practice	47	21.9%
■ Associate	46	21.4%
■ Academic setting/hospital	12	21.4%
■ Public health/nonprofit clinic	14	6.5%
■ Associate/DSO	46	5.6%
Practice characteristics	Frequencies N=210	Percentages
Location of your primary practice:		
■ Rural (<5,000)	4	1.9%
■ Small town/city (5,000-24,999)	28	13.5%
■ Moderate-sized city (25-250K)	62	29.5%
■ Suburb near large city	72	32.9%
■ Large city	47	22.2%
% of patients with		
■ High socio-economic status	27.55%	24.538/0 – 100%
■ Average socio-economic status	35.37%	19.685/0 – 100%
■ Low socio-economic status	37.27%	27.077/0 – 100%
# of patients treated in average week	121.07	82.169/2 – 500
% of patients 72 months or younger	38.22%	17.426/5 – 90
% of patients dentist considers to be obese	16.73%	14.784/1 – 95

Academy of Pediatric Dentistry encourages parents to establish a dental home by 12 months of age, because it offers opportunities to encourage preventive health practices such as diet/nutrition counseling, and thus reduces the child's risk of preventable poor oral health.²⁰ Referrals by primary care providers have therefore been recommended as early as 6 months of age and no later than 12 months of age.¹⁹

One additional consideration in this context is to gain a better understanding of which factors will impact pediatric dentists' professional behavior. Research showed that professional education and exposure to systemic health interventions during training were key elements in encouraging the integration of these elements into clinical practice.²¹ Pediatric dentists reported receiving nutritional and lifestyle-related information during their residency and in continuing education programs, which may influence their confidence in broadening their scope of practice.^{22,23}

It is important to gain a better understanding of pediatric dentists' attitudes concerning pediatric obesity prevention if interdisciplinary approaches are to be integrated into dental practice. Therefore, the objectives were to assess pediatric dentists' considerations concerning who should provide obesity-related interventions for parents of young children, what should be addressed, how and when, and which factors would affect professional attitudes and behavior in this context.

Methods

The Health Sciences and Behavioral Sciences Institutional Review Board at the University of Michigan in Ann Arbor, Michigan, determined that this study was exempt from IRB oversight on June 30, 2022 (#HUM00219914).

This research had a cross-sectional study design.

Respondents: An *a priori* power analysis with the program package G*Power 3.1.2 (<http://www.psych.uni-duesseldorf.de/abteilungen/aap/gpower3>) was conducted to compute the needed sample size. Assuming that $\alpha = 0.05$ and the power = 0.95, and a small effect size of $|\rho| = 0.12$ when testing one-sided hypotheses that obesity-related attitudes would correlate with professional behavior, the results showed that 164 respondents would be required to test these hypotheses. Assuming a low response rate, recruitment emails were sent to 6,323 active members of the AAPD who practiced in the United States.

Procedure: The survey was developed and pilot-tested with seven pediatric dentists. Based on their feedback, the survey was finalized and posted on Qualtrics. The AAPD provided email addresses of its members for a nominal fee. A single recruitment email was sent to the received 6,323 addresses. Fifty emails bounced, 13 addresses were duplicated, and one email failed, resulting in 6,269 successfully sent recruitment emails. A total of 210 surveys were returned.

Materials: The recruitment email was written according to the guidelines of the University of Michigan Health Sciences and Behavioral Sciences Institutional Review Board. It informed potential respondents about the purpose of the research and asked to volunteer and access the survey with a web link provided in the email.

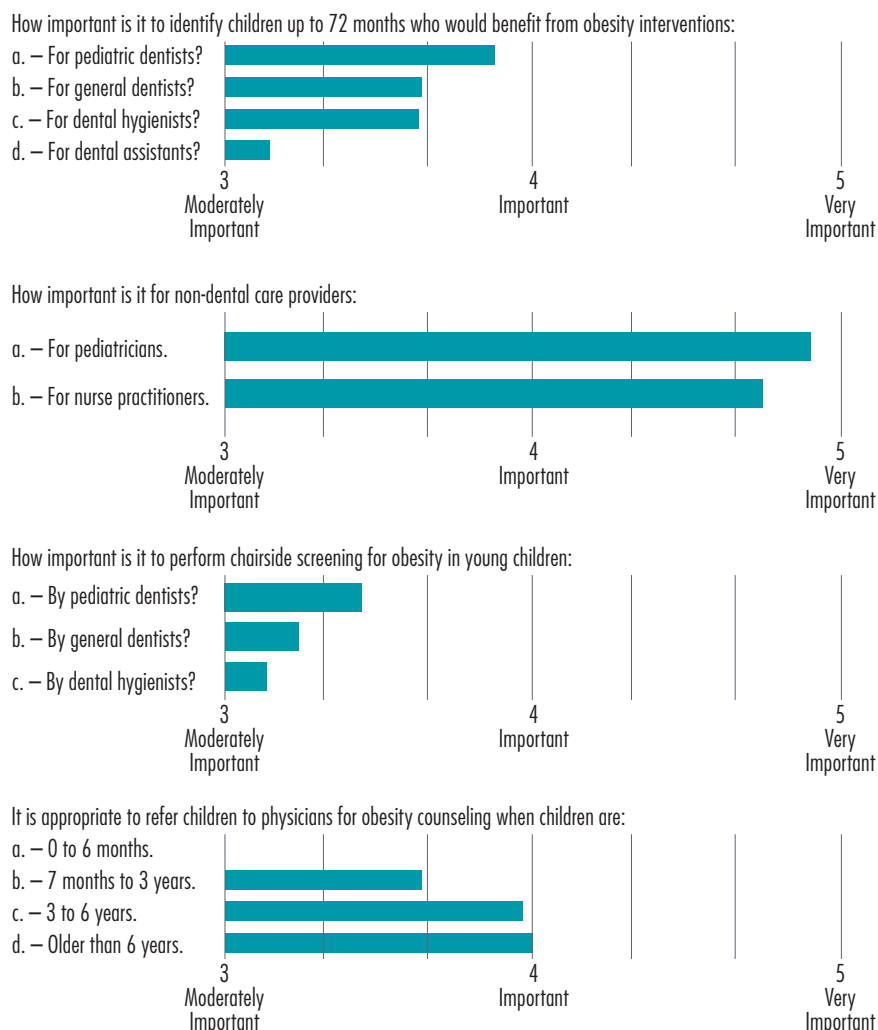
The questionnaire consisted of five parts. Part 1 asked questions about who should engage in obesity-related counseling. Part 2 consisted of questions concerning which obesity-related content should be discussed with parents of young children. Part 3 had questions concerning how and when to best educate parents. Part 4 inquired about personal and educational experiences concerning obesity-related diet/nutritional counseling for

young children, and Part 5 assessed respondents' background and practice characteristics

Statistical analyses: The data were downloaded from Qualtrics as an SPSS data file (Version 26). Descriptive statistics such as percentages and means were computed to provide an overview of the responses. In order to be able to compute indices for the correlational analyses, four factor analyses were conducted to determine underlying factors for the items presented in Figures 1 to 4, respectively (extraction method: principle

component analysis; rotation method: Varimax rotation with Kaiser Normalization). Based on the results, indices were computed by averaging the responses to the items with factor loadings over 0.40 on each factor, respectively. Cronbach alpha coefficients showed that the inter-item consistency of the items loading on each factor were over 0.70, indicating that the scales had sufficient inter-item consistency.²⁴ Pearson correlation coefficients were used to determine the relationships between the education-
(Continued on Page 48)

Figure 1 — Attitudes towards obesity-related behavior in pediatric dental offices



al, attitudinal and behavioral indices. Because numerous statistical tests were performed simultaneously when analyzing the relationships between the indices, Bonferroni corrections were applied and the alpha value was lowered to $p < 0.001$.²⁵

Results

Table 1 (see Page 46) provides an overview of the characteristics of the 210 pediatric dentists who responded to the survey. A slightly lower percentage of respondents were male than female (47.5% vs. 52.5%). The respondents ranged in age from 30-70 years (mean = 49.10 years). Most respondents were from European-American background (72.2%). They graduated from dental school between 1968-2019 and from their pediatric dentistry residency programs

between 1972-2021. Most had attended a combined university- and hospital-based program (58.2%), with 26.9% having attended a hospital-based program and 24.9% a university-based program.

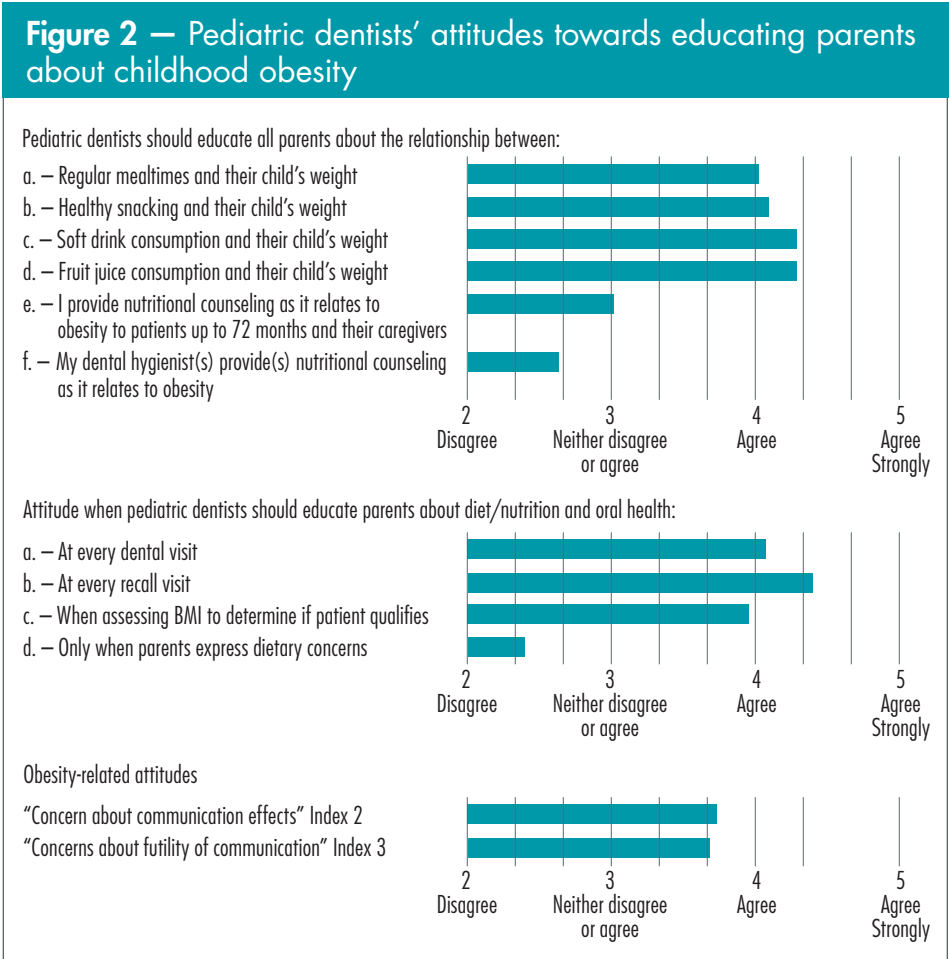
Concerning their employment situation, 30.6% worked in solo practices, 21.9% in group practices, 21.4% as an associate and in academic settings/hospitals. Only 2% practiced in a rural area, 13.5% in a small town, 29.5% in a moderate-sized city, 32.9% in the suburb of a large city, and 22.2% in a large city. On average, 27.6% of their patients were from high socioeconomic backgrounds, 35.37% from average socioeconomic backgrounds, and 37.27% from low socioeconomic backgrounds. The pediatric dentists treated on average 121 patients per week, with an average of 38.2% being

under 72 months of age and 16.7% being considered obese.

Figure 1 (see Page 46) shows responses related to who should be engaged in obesity-related education. When asked how important it is that different dental care providers identify children up to 72 months who would benefit from obesity interventions, the average response for pediatric dentists was 3.88 on a 5-point scale, with 5=very important, with a mean of 3.64 for general dentists, 3.63 for dental hygienists, and 3.15 for dental assistants. The responses were more positive for pediatricians (mean=4.84) and nurse practitioners (mean=4.69). It was considered moderately important that pediatric dentists (mean=3.44), general dentists (mean=3.24), and dental hygienists (mean=3.13) performed chairside screenings for obesity in young children. While nobody agreed that it was important to refer infants between 0-6 months to physicians for obesity counseling, the mean ratings for 3-6 year old children (mean=3.94) and for children over 6 years (mean=4.00) showed that this professional behavior was seen as important.

Figure 2 on this page shows that pediatric dentists agreed that they should educate all parents about the relationship between regular meal times and their child's weight, between their child's weight and healthy snacking, and about the role of soft drink and fruit juice consumption. However, their response to the question whether they provided obesity-related counseling for patients up to 72 months was on average neutral (mean=3.02) and even less positive for their dental hygienists (mean=2.62).

The pediatric dentists agreed that education for parents about diet/nutrition and oral health should happen at every dental visit (mean=4.10), at every recall visit (mean=4.47), and when assessing body mass index to determine if a patient qualifies for se-



dation (mean=3.94). They disagreed that they should only educate parents when parents expressed dietary concerns (mean=2.40).

Figure 3 shows that pediatric dentists neither agreed nor disagreed that they should obtain height measurements (mean=3.13) and calculate children's body mass index (BMI) (mean=3.04). Neutral responses were also given concerning chairside screenings for obesity (mean=2.92), discussing screening results with parents (mean=3.00), and performing obesity-related diet/nutrition counseling (mean=3.23). A slightly more positive response was received for making referrals to physicians for consultations about obesity concerns (mean=3.41).

When asked how they educated parents, they disagreed that they incorporated videos for diet/nutrition counseling (mean=2.04) and were on average close to neutral about using the teach-back method (mean=2.75), following up with diet/nutrition post-care instructions (mean=2.87), and using visual aids (mean=3.15).

Concerning the timing of parent education, the most-positive response was to the statement "When the child has all primary teeth" (mean=4.48), followed by the responses to the statements "At the first sign of tooth eruption" (mean=4.25) and "Before tooth eruption" (mean=3.87), with a more neutral response to the statement "During pregnancy" (mean=3.34).

Figure 4 (see Page 50) provides information about pediatric dentists' diet/nutrition-related professional education and knowledge. They described their education about diet/nutrition counseling in dental school as neutral to positive (5-point scale with 1=disagree strongly; mean=3.63), and agreed that they were well-educated about this topic in their residency program (mean=3.97). They agreed that they had educated themselves by reading material about obe-

sity (mean=4.07) but were less likely to have attended conferences (mean=3.67) or CE courses (mean=3.66), or to be educated from professional organizations (mean=3.55). They described their skills to address early childhood obesity with parents as close to neutral (mean=3.26).

Their responses concerning being educated about identifying and screening for obesity in children up

to 72 months were neutral to positive (mean=3.68/3.62). Their responses concerning discussions with parents about how to modify eating practices (mean=3.87), physical activities (mean=3.52), sedentary lifestyles (mean=3.47), and assessing the child's degree of being overweight or obese (mean=3.26) were neutral to positive as well.

(Continued on Page 50)

Figure 3 — Responses concerning diet/nutrition counseling-related professional behavior

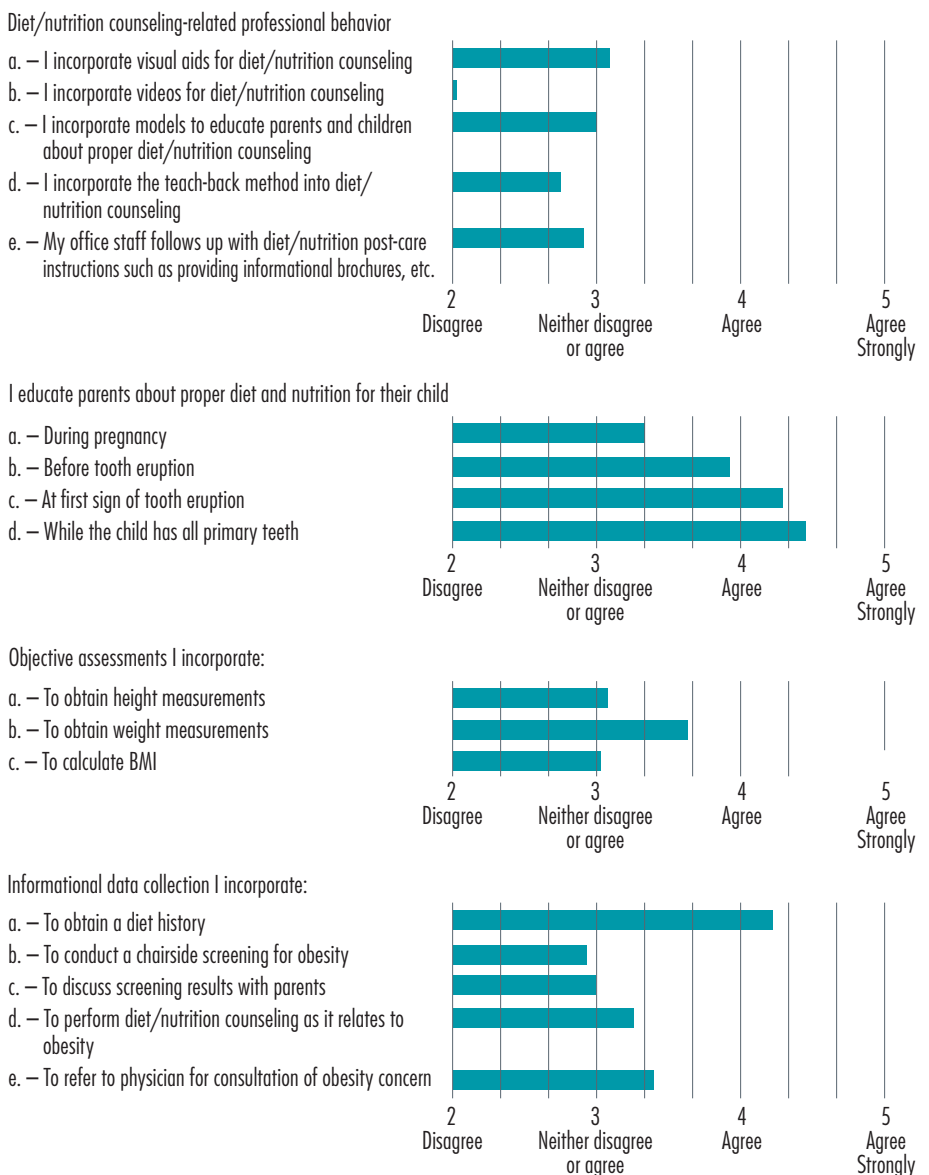


Table 2 (see Page 51) explores the relationships between pediatric dentists' education and motivation to learn more, and their knowledge and obesity-related attitudes. The better the pediatric dentists' obesity-related education was, the more knowledge they had about how to communicate about obesity with parents ($r=0.48$; $p<0.001$). Obesity-related education also correlated with related attitudes concerning educating parents about obesity ($r=0.30$; $p<0.001$). The interest in gaining more obesity-related professional education correlated positively with the importance of identifying ($r=0.58$; $p<0.001$) and screening for obesity ($r=0.58$; $p<0.001$) and attitudes related to educating parents ($r=0.57$; $p<0.001$), but negatively with concerns about the futility of such communication ($r=-0.29$; $p<0.001$). Pediatric

dentists' knowledge correlated with the importance of performing screenings ($r=0.27$; $p<0.001$) and answers related to educating parents ($r=0.42$; $p<0.001$), but negatively with answers related to the futility of communication ($r=-0.27$; $p<0.001$).

Table 3 (see Page 53) informs about relationships between attitudes and professional behavior. It shows that attitudinal indices correlated with each other. The more pediatric dentists considered that it is important that dental care providers identified obese children, the more important they thought it was for non-dental care providers to identify children ($r=0.31$; $p<0.001$), to perform chair-side screenings ($r=0.78$; $p<0.001$), and to educate parents ($r=0.56$; $p<0.001$).

Obesity-related attitudes and behavior correlated as predicted. Posi-

tive attitudes towards obesity counseling correlated with more objective weight determination ($r=0.42$; $p<0.001$), incorporating informal data collection about obesity ($r=0.53$; $p<0.001$), and diet/nutrition counseling related behavior ($r=0.24$; $p<0.001$).

Discussion

The fact that between 2017 and 2020, 14.7 million children and adolescents in the United States were obese¹ should be alarming because these children and adolescents are likely to be obese as adults and to have an increased risk for serious health consequences such as heart disease, type II diabetes, stroke, several types of cancer, and osteoarthritis.²⁻⁵ Multi-disciplinary approaches to obesity prevention in general²⁶ and to pediatric obesity prevention have been proposed. It is therefore important to gain a better understanding of pediatric dentists' considerations concerning who should counsel parents/guardians of young children about the prevention and management of obesity and what content should be addressed.

The data showed that while pediatric dentists did not quite agree on average that they themselves, general dentists, and dental hygienists should identify these children, they strongly agreed that pediatricians and nurse practitioners should do so. This finding is consistent with research by Daley et al. who also found that primary care providers were thought of as the most likely health care providers to screen for obesity and provide obesity-related education, while dentists and dental team members were often not considered.⁹

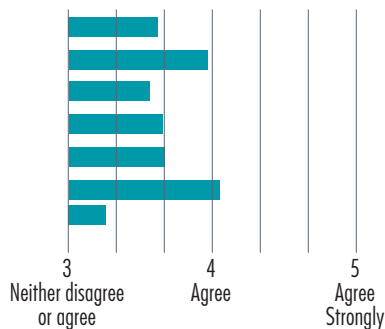
Worldwide, guidelines encourage physicians to screen for obesity and recommend to patients to reduce their weight.²³ In the United States, more than 50% of ADA-member dentists reported they were interested in offering obesity-related services, but

(Continued on Page 52)

Figure 4 — Responses related to pediatric dentists' diet/nutrition related education

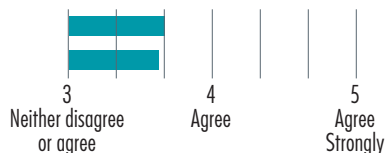
I was educated about diet/nutrition counseling:

- a. — In dental school
- b. — In my residency program
- c. — By my professional organization
- d. — In CE courses
- e. — At conferences
- f. — By reading material about it
- g. — I have the skills to address early childhood obesity



I am interested in education about:

- a. — Identifying obesity in children up to 72 months
- b. — Screening for obesity in children up to 72 months



I know how to have a discussion with parents about:

- c. — Modification of eating practices
- d. — Modification of physical activity
- e. — Modification of sedentary lifestyle
- f. — An assessment of the child's degree of overweight/obesity

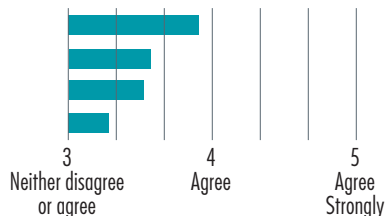


Table 2 — Overview of relationships between obesity-related education, motivation to learn more and knowledge and their attitudes related to obesity-related professional behavior

Pediatric dentists' obesity-related education, motivation to learn more, and knowledge	A= Education	B= Interest	C= Knowledge
A ¹ = "Pediatric dentists' obesity-related education" index	1	0.07	0.48 ***
B ² = "Interest in obesity-related education" index	0.07	1	0.21 **
C ³ = "Knowledge how to communicate about obesity with parents" index	0.48 ***	0.21**	1
Obesity related attitudes	A= Education	B= Interest	C= Knowledge
D ⁴ = "Importance of identifying obese children for dental care providers"	0.10	0.58 ***	0.22 **
E ⁵ = "Importance of identifying obese children for non-dental care providers" index	0.01	0.10	0.03
F ⁶ = "Importance of performance of screenings" index	0.13	0.58 ***	0.27 ***
G ⁷ = "Concern about communication effects" index	-0.13	-0.15 *	-0.19 **
H ⁸ = "Concerns about futility of communication" index	-0.20 **	-0.29 ***	-0.27 ***
I ⁹ = "Pediatric dentists should educate parents" index	0.30 ***	0.57 ***	0.42 ***
J ¹⁰ = "Attitude: Refer for obesity counseling" index	0.07	0.60 ****	0.28 ***

Legend: NOTE: * = p<0.05; ** = p<0.01; *** = p<0.001

1. For the construction of the "Pediatric dentists' obesity-related education" index see Figure 1
2. For the construction of the "Interest in obesity-related education" index see Figure 1
3. For the construction of the "Knowledge how to communicate about obesity with parents" index see Figure 1
4. For the construction of the "Importance of identifying obese children for dental care providers" see Figure 2
5. For the construction of the "Importance of identifying obese children for non-dental care providers" index see Figure 2
6. For the construction of the "Importance of performance of screenings" index see Figure 2
7. For the construction of the "Concern about communication effects" index see Figure 3
8. For the construction of the "Concerns about futility of communication" index see Figure 3
9. For the construction of the "Pediatric dentists should educate parents" index see Figure 3
10. For the construction of the "Attitude: Refer for obesity counseling" index see Figure 2

fewer than 5% actually provided this intervention.¹⁹

One potential explanation for the lower agreement that dentists should identify children who would benefit from obesity interventions could be that pediatric dentists were concerned about negative parent responses to obesity-related education. However, research showed that many parents wanted information about weight management from dental providers.¹²⁻¹⁴ The AAPD could play an important role in emphasizing that every pediatric dentist should provide obesity-related diet/nutritional counseling to parents/caregivers of young children. Developing guidelines about how to engage in this type of professional behavior optimally could also increase these efforts. While many pediatric dentists provide diet/nutrition counseling as it relates to caries prevention,^{5,11} only approximately 6% engaged in weight-related screenings and obesity-related parent education.¹¹

When educating parents of young children about the fact that frequent consumption of sugar-sweetened snacks and beverages increases their child's susceptibility for developing dental caries,³⁰ explaining that these foods are related to childhood obesity is important.³⁰ Adding obesity-related screenings into dental visits to complement pediatricians' efforts in obesity prevention and intervention⁴ could provide the groundwork for making appropriate referrals to pediatricians or nutritional specialists.¹⁸ It is important to consider that pediatric dentists already have the equipment for height-weight screenings in their practices, because it is needed to calculate BMI for safe dosages for local anesthesia, and sedation.³

If pediatric dentists engage in obesity-related education of parents of young children, it is important to consider how to best approach this type of education. Unfortunately, respondents did not commonly consider using visual aids or videos in these situations which can provide exact information.²⁸ Using educational videos was employed in many countries and was shown to be effective for oral health education because it resulted in a higher rate of retaining the presented information.¹⁸ Additionally, the AAPD²¹ and Curran et al.²² described that the fear of offending children and caregivers or of appearing judgmental was the most commonly reported barrier to considering obesity interventions. The American Medical Association therefore suggested that pediatric dentists should use simple dialect and visual illustrations with models or radiographs, present two to three ideas at a time, and speak at a slower pace. A randomized controlled trial in 2013-14 showed that a very short, informative intervention provided by primary care givers was highly acceptable to patients and an effective way to increase weight loss in obese patients.²⁹

When considering the timing of providing obesity-re-

lated parent education, pediatric dentists agreed that a good timing was when all primary teeth were present. They also agreed that it is important to provide this education at every dental visit and especially at every recall visit. However, beginning this type of education when all primary teeth are present might miss important earlier opportunities for prevention. According to the AAPD, parents should establish a dental home for their children in early childhood, at the time of the eruption of the first tooth and no later than 12 months of age infancy.²¹ Considering obesity-related screenings before all primary teeth are present would therefore be more optimal for prevention of future problems. While the majority of children were not seen by dentists by 1 year of age,¹⁰ early education was recommended for diet and nutritional counseling and was considered an opportune time for obesity-related education and intervention.^{34,35} It is therefore important that dental care providers consider educating parents about the importance of early visits to the dentist so they can screen for obesity and educate parents or make appropriate referrals to pediatricians for obesity-related interventions.

In addition to being concerned about negative responses from parents when engaging in obesity-related education, insufficient professional education could also be a barrier to actually addressing this concern. While the respondents agreed on average that their pediatric residency program had educated them about diet/nutrition counseling, they were neutral in response to the statement "I have the skills to address early childhood obesity." This finding might explain why oral health care providers had not taken an active role in addressing pediatric obesity concerns,^{22,36} while reporting that insufficient training had prevented them from doing so.²² Research showed that exposures to systemic health interventions during training were key elements for integrating these elements into clinical practice.²² Receiving healthy lifestyle-related information during residency and continuing education can increase pediatric dentists' confidence in broadening their scope of practice with their patients.^{23,24}

In 2011, only 59% of U.S. dental schools provided education about oral health and obesity in lectures, and only 36% included questions concerning weight, height, or BMI in their new patient evaluation forms.³⁶ This resulted in the majority of dental students expressing difficulty discussing obesity prevention or providing no discussion at all during their interactions with parents.³⁶ Increasing dental students' comfort with discussing obesity-related diet/nutritional counseling might benefit from including skills training with standardized patient interactions³⁷ and from motivational communication training in dental

(Continued on Page 54)

Table 3 — Relationships between obesity-related attitudes and professional behavior

Obesity-related attitudes	A	B	C	D	E	F	G	H
A ¹ = "Importance that dental care providers identify obese children" index	1	0.31 ***	0.78 ***	-0.13	-0.23 ***	0.56 ***	0.29 ***	0.52 ***
B ² = "Importance that non-dental care providers identify obese children" index	0.31 ***	1	0.30 ***	-0.00	-0.04	0.08	0.26 ***	0.14 *
C ³ = "Importance to perform screenings" index	0.78 ***	0.30 ***	1	-0.19 **	-0.25 ***	0.56 ***	0.34 ***	0.57 ***
D ⁴ = "Concern about communication effects" index T3	-0.13	-0.00	-0.19 **	1	0.42 ***	-0.13	-0.12	-0.22 **
E ⁵ = "Concerns about futility of communication" index T3	-0.23 **	-0.04	-0.25 ***	0.42 ***	1	-0.23 ***	-0.20 **	-0.39 ***
F ⁶ = "Pediatric dentists should educate parents" index T4	0.56 ***	0.08	0.56 ***	-0.13	-0.23 ***	1	0.30 ***	0.42 ***
G ⁷ = "Pediatric dentists should educate parents when" index	0.29 ***	0.26 ***	0.34 ***	-0.12	-0.20 **	0.30 ***	1	0.24 ***
H ⁸ = Attitude: Refer for obesity counseling" index	0.52 ***	0.14 *	0.57 ***	-0.22 **	-0.39 ***	0.42 ***	0.24 ***	1
Obesity-related professional behavior	A	B	C	D	E	F	G	H
I ⁹ = "Objective weight determination" index	0.42 ***	0.11	0.44 ***	-0.19 **	-0.30 ***	0.42 ***	0.22 ***	0.44 ***
J ¹⁰ = "Incorporate informal data collection" index	0.53 ***	0.14 *	0.55 ***	-0.29 ***	-0.28 ***	0.61 ****	0.30 ***	0.60 ***
K ¹¹ = "Diet/nutrition counseling behavior" index	0.24 ***	0.07	0.21 **	-0.23 ***	-0.34 ***	0.36 ***	0.18 *	0.35 ***
L ¹² = "Timing of education" index	0.22 **	0.18 *	0.29 ***	-0.06	-0.22 **	0.42 ***	0.40 ***	0.27 ***

Legend: NOTE: * = p<0.05; ** = p<0.01; *** = p<0.001

1. For the construction of the "Importance of identifying obese children for dental care providers" see Figure 2
2. For the construction of the "Importance of identifying obese children for non-dental care providers" index see Figure 2
3. For the construction of the "Importance of performance of screenings" index see Figure 2
4. For the construction of the "Concern about communication effects" index see Figure 3
5. For the construction of the "Concerns about futility of communication" index see Figure 3
6. For the construction of the "Pediatric dentists should educate parents" index see Figure 3
7. For the construction of the "Pediatric dentists should educate parents WHEN" index see Figure 3
8. For the construction of the "Attitude: Refer for obesity counseling" index see Figure 4
9. For the construction of the "Objective weight determination" index see Figure 4
10. For the construction of the "Incorporate informal data collection" index see Figure 4
11. For the construction of the "Diet/nutrition counseling behavior" index see Figure 4
12. For the construction of the "Timing of education" index see Figure 4

school curricula,^{38,39} because the more educated and knowledgeable pediatric dentists in our study were concerning obesity-related diet/nutrition counseling, the more interest they had in educating parents.

The findings in this study concerning the relationships between pediatric dentists' education and knowledge concerning obesity-related diet/nutrition counseling and their professional attitudes and behavior should be a call to action for dental educators to increase their educational efforts in this area.

This study had several limitations. A first limitation was that the education-related questions focused to a large degree on education about diet/nutrition. Future research should focus centrally on asking about obesity-related training. Another limitation was that this research focused only on pediatric dentists' responses. Future research should also collect data from general dentists, dental hygienists, and other dental team members who treat pediatric patients. In addition, conducting a study with parents and exploring their perceptions of obesity-related education for parents would also increase our understanding of this content area. A final limitation is that although the sample size was sufficient to have the power

to test the hypotheses of interest, it did not allow performing additional subgroup analyses such as whether subgroups of respondents in different locations or in different employment situations differed in their obesity-related attitudes and behavior.

Conclusions

Based on the results of this study, the data showed that

- Pediatric dentists think that it is almost important that they, general dentists, and dental hygienists identify children up to 72 months who would benefit from obesity interventions.

- Pediatric dentists think it is very important that pediatricians and nurse practitioners do so.

- Pediatric dentists consider chairside screenings for obesity as moderately important for dental care providers.

- Pediatric dentists agree that they should educate parents about the relationship between diet and oral health, but are neutral concerning obesity-related education.

- The better pediatric dentists are educated about

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obesity and oral health, the more knowledge they have, the more positive their attitudes are and the more professional behavior they show. ●

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Reference

1. Centers of Disease Control and Prevention. Childhood obesity facts. Available at: <https://www.cdc.gov/obesity/data/childhood.html>. Published 2022-05-17. Accessed 2022-08-02.
2. Vann WF Jr, Bouwens TJ, Braithwaite AS, Lee JY. The childhood obesity epidemic: a role for pediatric dentists? *Pediatr Dent* 2005;27(4):271-6.
3. Tseng R, Vann WF Jr, Perrin EM. Addressing childhood overweight and obesity in the dental office: rationale and practical guidelines. *Pediatr Dent* 2010;32(5):417-23.
4. Ogden CL, Carroll MD, Kit BK, Flegal KM. Prevalence of childhood and adult obesity in the United States, 2011-2012. *J Am Med Assoc* 2014;311(8):806-14.
5. American Academy of Pediatric Dentistry. Policy on Dietary Recommendations for Infants, Children, and Adolescents. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2022:575-03.
6. Center for Disease Control and Prevention: National Health and Nutrition Examination Survey. NHANES 2017-2018 Overview. Available at: <https://wwwn.cdc.gov/nchs/nhanes/continuousnhanes/overview.aspx?BeginYear=2017>. Accessed 2022-12-03.
7. Kunte S, Gandhali D, Zingade S, Lackade L, Kamble A, Jagtap C. The knowledge, attitude and awareness of infant oral health care among gynecologists and pediatricians. *IOSR JDMS* 2018;17(4):63-7.
8. Daley AJ. Time to get our teeth into reducing obesity: should dentists screen and deliver interventions to reduce obesity in the population? *Br Dent J* 2022;232(2):78-9.
9. Brickhouse TH, Unkel JH, Kancitis I, Best AM, Davis RD. Infant oral health care: a survey of general dentists, pediatric dentists, and pediatricians in Virginia. *Pediatr Dent* 2008;30(2):147-53.
10. Wright R, Casamassimo PS. Assessing attitudes and actions of pediatric dentists toward childhood obesity and sugar-sweetened beverages. *J Public Health Dent* 2017;77(Suppl 1):S79-S87.
11. Swinney FV, Vann Jr WF, Mihai P, Burgette JH, Ammerman A, Lee YJ. Caregivers' perceptions about discussing children's weight: A pilot study. *Dent Open J* 2015;(2):47-54.
12. Wijey T, Blizard B, Louca C, Leung J, Suvan J. Patient perceptions of healthy weight promotion in dental settings. *J Dent* 2019;91S: 100002.
13. Tavares M, Chomitz V. A healthy weight intervention for children in a dental setting: a pilot study. *J Am Dent Assoc* 2009;140(3):313-6.
14. Tham R, Bowatte G, Dharmage SC, et al. Breastfeeding and the risk of dental caries: a systematic review and meta-analysis. *Acta Paediatr* 2015;104(467):62-84.

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About the Authors

Arianne Swanson, DDS, MS, is in private practice in Dearborn, Michigan.

James R. Boynton, DDS, MS, is a clinical professor, Pediatric Dentistry Division head, and graduate program director, Department of Orthodontics and Pediatric Dentistry, at the University of Michigan School of Dentistry, Ann Arbor, Michigan.



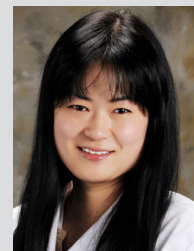
Boynton

Larry B. Salzmann, DDS, is clinical associate professor, director of the Pre-doctoral Program in Pediatric Dentistry, and clinical director for pediatric dentistry, in the Department of Orthodontics and Pediatric Dentistry, University of Michigan School of Dentistry, Ann Arbor, Michigan.



Salzmann

Yu-Ju Yang, DDS, MS, is clinic and graduate program director, Department of Child and Adolescent Dentistry, at Mott Children's Health Center, Flint, Michigan; and an adjunct clinical associate professor of dentistry in the Department of Orthodontics and Pediatric Dentistry, University of Michigan School of Dentistry, Ann Arbor, Michigan.



Yang

Marita R. Inglehart, Dipl. Psych., Dr. phil., Dr. phil. habil., is the University Diversity and Social Transformation Professor, a professor of dentistry, Department of Periodontics and Oral Medicine, School of Dentistry, and an adjunct professor of psychology, Department of Psychology, College of Literature, Science and Arts, University of Michigan, Ann Arbor, Michigan.



Inglehart



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15. Malik VS, Schulze MB, Hu FB. Intake of sugar-sweetened beverages and weight gain: a systematic review. *Am J Clin Nutr* 2006;84(2):274-88.

16. Tseng W, Pleasants E, Ivey SL, et al. Barriers and facilitators to promoting oral health literacy and patient communication among dental providers in California. *Int J Environ Res Public Health* 2020;18(1):216.

17. Ibiyemi O, Oke GA. A dental health education video for Nigerian children in the Yoruba language. *African Journal of Biomedical Research* 2011;14(1):77-9.

18. Bhatti A, Vinall-Collier K, Duara R, Owen J, Gray-Burrows KA, Day PF. Recommendations for delivering oral health advice: a qualitative supplementary analysis of dental teams, parents' and children's experiences. *BMC Oral Health* 2021;21(1):210.

19. Lalchandani CM, Tandon S, Sharma RT, Kajal A. Efficacy of an audio-visual aid in improving knowledge and awareness towards infant oral health care for expectant mothers. *jida*; 2020. doi:10.33882/jida.13.25520

20. American Academy of Pediatric Dentistry. Policy on the Dental Home. The Reference Manual of Pediatric Dentistry. Chicago, Ill.: American Academy of Pediatric Dentistry; 2018:43-4.

21. Curran AE, Caplan DJ, Lee JY, et al. Dentists' attitudes about their role in addressing obesity in patients: a national survey. *J Am Dent Assoc* 2010;141(11):1307-16.

22. Braithwaite AS, Vann WF Jr, Switzer BR, Boyd KL, Lee JY. Nutritional counseling practices: how do North Carolina pediatric dentists weigh in? *Pediatr Dent* 2008;30(6):488-95.

23. Horowitz AM, Kleinman DV, Child W, Radice SD, Maybury C. Perceptions of dental hygienists and dentists about preventing early childhood caries: A qualitative study. *J Dent Hyg* 2017;91(4):29-36.

24. DeVellis RF. Scale development: Theory and applications. 3rd ed. Thousand Oaks, California: Sage Publications Inc., 2012.

25. Sedgwick P. Multiple hypothesis testing and Bonferroni's correction. *BMJ* 2014;349:g6284.

26. National Academies of Sciences, Engineering, and Medicine 2022. Addressing Structural Racism, Bias, and Health Communication as Foundational Drivers of Obesity: Proceedings of a Workshop Series. Washington, DC: The National Academies Press. <https://doi.org/10.17226/26437>.

27. National Institute for Health and Care Excellence. Weight management: lifestyle services for overweight or obese adults. Public health

guideline [PH53]. London: National Institute for Health and Care Excellence, 2014. 27.

28. Shetty RM, Dixit UB. Paediatricians' views on dental and oral health and treatment needs in children. *Oral Health Prev Dent* 2011;9(4):315-22.

29. Marshall TA, Levy SM, Broffitt B, et al. Dental caries and beverage consumption in young children. *Pediatrics* 2003;112(3 Pt 1):e184-e91.

30. Costacurta M, DiRenzo L, Sicuro L, Gratterer S, De Lorenzo A, Docimo R. Dental caries and childhood obesity: analysis of food intakes, lifestyle. *Eur J Paediatr Dent* 2014;15(4):343-8.

31. Lees A, Rock WP. A comparison between written, verbal and videotape oral hygiene instruction for patients with fixed appliances. *J Orthod* 2000;27(4):323-8.

32. Aveyard P, Lewis A, Tearne S et al. Screening and brief intervention for obesity in primary care: a parallel, two-arm, randomized trial. *Lancet* 2016;388(10059):2492-500.

33. Shulman ER, Howard WG, Sharps G, Wearden S. The impact of a continuing education oral health program on providing services for young children by dentists, dental hygienists and dental assistants. *J Dent Hyg* 2011;85(3):220-8.

34. Bhat SS, Sargod SS, Kumar K. Pediatricians' views about oral health care. *Indian J Pediatr* 2006;73(6):535-6.

35. Lee JY, Caplan DJ, Gizlice Z, Ammerman A, Agans R, Curran AE. US pediatric dentists' counseling practices in addressing childhood obesity. *Pediatr Dent* 2012;34(3):245-50.

36. Smith PD, Noorullah K, Iqbal L, Tomar SL. Dental students' comfort discussing nutrition and obesity prevention with parents and caregivers. *J Dent Educ* 2021;85(6):828-34.

37. Kushner RF, Zeiss DM, Feinglass JM, Yelen M. An obesity educational intervention for medical students addressing weight bias and communication skills using standardized patients. *BMC Medical Education* 2014;14(1):1-8.

38. Inglehart MR. Motivational communication in dental practices: Prevention and management of caries over the life course. *Dent Clin North America* 2019;63(4):607-20.

39. Inglehart MR. Oral health behavior change and oral health promotion. Chapter 21. Mascarenhas AK (Ed). Burt and Eklund's dentistry, dental practice and the community. 7th edition. St. Louis, Missouri, Elsevier Inc. Publishing Company, 2020; 234-46.