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Exploring Dietary Patterns with the Rapid Eating and Activity Assessment for Patients (REAP) Tool in a Dental School Clinic

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Original Research

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ABSTRACT

Background: Dietary pattern assessment by healthcare providers leads to a better understanding of usual intake and evaluation of nutritional status, systemic health, and disease. Interprofessional team members can use such information to provide interventions leading to improved health outcomes.

Objective: The aim was to explore the dietary patterns of adults seen in a dental clinic using the Rapid Eating and Activity Assessment for Patients (REAP) tool.

Methods: This was a cross-sectional study of data from 220 adult patients (aged 18-89 years) who had a diet evaluation completed in a dental school clinic. Demographic information and REAP responses were obtained from the electronic health record and reported using frequency distributions.

Results: The study sample (N=220) was 50.0% male (n= 110). The median (IQR) age and BMI were 56.0 years (IQR=48.2, 66.0) and 28.0 kg/m2 (IQR= 24.3, 32.8 kg/m2), respectively; 73.5% had a BMI considered overweight or obese. Approximately one-third reported usually/sometimes eating sweets more than twice/day (n=74, 35.9%) and drinking more than 16 ounces of SSBs (n=74, 34.1%). Most reported usually/sometimes eating less than 3 servings of whole grains (n=165, 75.0%), 2-3 servings of fruit (n=155, 71.1%), or 3-4 servings of vegetables (n=121, 70.8%) daily. Seventy-two percent (n=156) indicated they were willing to make dietary changes.

Conclusion: This study revealed that the dietary patterns of adults seen in a dental school clinic did not align with the Dietary Guidelines for Americans recommendations. Diet assessment is feasible in this setting and may be an important part of interprofessional education.

INTRODUCTION

Assessing dietary patterns may be a quick way for members of an interprofessional healthcare team to gain insight into their patients' typical dietary habits and help evaluate overall risks for diet-related chronic disease. The 2020-2025 Dietary Guidelines for Americans (DGA) recommend following a healthy dietary pattern from infancy to older adulthood, including vegetables of all colors and types, fruits, whole grains, dairy, lean proteins, and non-tropical oils while limiting added sugars, saturated fats, and sodium.[1] Healthy dietary patterns have been inversely associated with all-cause mortality,[2-4] cardiovascular disease (CVD),[4-6] and cancer,[2,3,6] whereas poor dietary patterns higher in sugar, fat, and sodium, have been associated with obesity,[7-10] adiposity,[11,12] and inflammation.[13,14] Furthermore, obesity, which has increased in prevalence from 30.5% to 42.4% over the past 20 years,[15] is linked to a higher risk of developing cardiometabolic conditions including CVD, hypertension (HTN), and diabetes.[16]

The integration of nutrition education to healthcare professionals and students as part of interprofessional education (IPE) is essential to support interprofessional practice (IPP) in healthcare settings. IPE teaches healthcare providers to be patient-centered and provide a holistic approach to patient care, which leads to improved patient outcomes.[17] Healthcare organizations such as the American Heart Association (AHA) and The Obesity Society have called for more education and multidisciplinary teams to provide diet and weight counseling and coordinate comprehensive services.[18,19] In addition to primary care and other health care clinics, dental clinics may be an opportune setting to coordinate IPE and IPP related to systemic and oral health, and more dental school programs are incorporating IPE into their curricula.[20-22] There is a synergistic relationship between nutrition, oral health, and systemic disease,[23,24] though many patients are unaware of this relationship.[25] Dietary patterns, especially those higher in sugar and fermentable carbohydrates, are associated with dental caries.[26-29] Tooth loss, especially in older adults, has been associated with obesity,[30] diabetes,[31] and CVD,[32] and can lead to alterations in nutrient intake, and reduced diet quality and quantity, increasing the risk of malnutrition.[33-35] Thus, providing nutrition education in dental clinics as part of IPE and IPP may be an appropriate intervention to target nutrition concerns and improve patient outcomes.

To further assess obesity and the risk of diet-related chronic disease, the AHA recommends that healthcare professionals conduct diet screening/assessment using a rapid screening tool.[36] However, research analyzing dietary patterns in healthcare settings is limited and heterogeneous regarding the rapid screening tools used.[37-40] Given the associations between oral health and diet,[23,24,26,30-32] and in light of the limited research published reflecting the use of dietary pattern assessment tools in dental settings, further research in this area is warranted. By assessing and understanding the dietary patterns of patients in a dental clinic, the oral health care provider, registered dietitian nutritionist (RDN), and students can function as an interprofessional team and provide holistic care to the patient. Incorporating rapid diet screening in a dental school clinic can aid in starting conversations about diet quality, which could lead the way for more in-depth diet and nutrition interventions.

This study aimed to explore using the REAP tool in an interdisciplinary setting to assess the dietary patterns of adult patients seen in a dental school clinic as part of the routine diet and nutrition evaluation process and to evaluate the frequency of the patients' responses to each question on the tool.

METHODS

Research Design

This retrospective, cross-sectional study utilized a convenience sample of data from

adult patients aged 18 to 89 years who attended a northeastern dental school clinic between August 5, 2020, and February 2, 2022, completed a diet and nutrition evaluation, and had a complete or partially complete REAP. To meet competency requirements, student dentists or dietetics students completed diet and nutrition evaluations with patients and used the REAP dietary assessment tool during this process. The patient data used for analysis was information regularly collected as part of routine dental care and were extracted from the Electronic Medical Record (EMR). The facility's Institutional Review Board approved the study and waiver of informed consent (Study ID: Pro2021000687).

REAP Tool

Per the dental clinic procedures, the use of the 31-question Rapid Eating and Activity Assessment for Patients (REAP) tool was approved by the Office of Clinical Affairs and implemented as a procedural component for diet assessment and evaluation in the dental clinic. Permission to use the validated REAP questionnaire[41] was obtained from the creators before it was implemented. Questions on the REAP tool assess dietary patterns; a supplemental provider key offers talking points for patient education and discussions.[41] The REAP can be used with diverse populations as part of a comprehensive assessment to screen for dietary patterns associated with obesity and other cardiometabolic risk factors.[36,42] For the purposes of this study, "dietary pattern" was defined based on the REAP tool, which includes total daily meals, grains, fruits and vegetables, dairy, meats/chicken/turkey, fried foods, snacks, fats and oils, sweets, soft drinks, sodium, alcohol, and activity.[43]

Data Analysis

Data were assessed for normality of distribution with visual inspections of histograms and boxplots and Kolmogorov–Smirnov tests. Demographic and clinical characteristics were reported as frequencies (n, %) with the median and interquartile range as data were not normally distributed. Height data were considered outliers if the measurement was less than 24 inches or greater than 95 inches, and weight data were considered outliers if less than 50 pounds or greater than 500 lbs.[44] BMI was considered both a continuous and categorical variable and was classified per Centers for Disease Control and Prevention definitions.[45] The responses to the REAP questions 1-30 were reported as frequency distributions (n, %), categorized as "usually/often," "sometimes," and "rarely/never" or additional responses per the REAP. Question 31, which assessed willingness to change, was reported as a frequency distribution (n,%) on a scale from 1 to 5. Not all data were available for each patient; thus data were analyzed as available. Data were analyzed using SPSS (Version 28.0, IBM Corp, Armonk, NY).

RESULTS

Table 1 shows the demographic characteristics of the study sample. The sample was 50.0% male (n= 110). Although ethnicity and race data were missing for more than 60% of the

Table 1. Demographic characteristics of study patients with a completed or partially completed REAP

	n (%)
Gender (n= 220)	
Male	110 (50.0)
Female	110 (50.0)
Ethnicity (n= 81)	
Non-Hispanic/Latino	55 (67.9)
Hispanic/Latino	26 (32.1)
Race (n= 83)	
White	46 (55.4)
Black/African American	32 (38.6)
Asian	4 (4.8)
Native American/Pacific Islander	1 (1.2)

patient records, more than half of patients with available data identified as Non-Hispanic/Latino (n= 55, 67.9%) and White (n= 46, 55.4%). The median age was 56.0 years (IQR= 48.2, 66.0 years).

The median BMI of the patients was 28.0 kg/m^2 (IQR= 24.3, 32.8 kg/m^2); 71.0% (n= 152) had BMIs reflective of overweight or obese. Only 7.8% of patients self-reported a history of CVD (n= 17), while 16.9% self-reported a history of diabetes (n= 37), and 35.3% a history of HTN (n= 77). Table 2 and Table 3 display the clinical characteristics of the patients in the study.

Table 2. Age and anthropometric measurements of patients with a completed or partially completed REAP

Variable	Median (IQR)
Age (years) (n= 220)	56.0 (48.2, 66.0)
Height (cm) (n= 215)	168.0 (160.0, 175.0)
Weight (kg) (n= 217)	77.3 (61.1, 96.6)
Body mass index (kg/m^2) (n=214)	28.0 (24.3, 32.8)

IQR= interquartile range (Quartile 1- Quartile 3);
cm = centimeters, kg = kilograms, m^2 = meters squared

The responses to all the questions on the REAP tool, which asks about the average daily intake from each food group during a typical week, are reported in Table 4. The majority of patients (75.0%, n= 144) reported *usually/often* or *sometimes* eating less than three servings of whole grains. Related to fruits and vegetable intake, 71.1% (n= 155) and 70.7% (n=121) *usually/often* or *sometimes* ate less than 2-3 servings of fruits or 3-4 servings of vegetables/potatoes daily, respectively. Regarding dairy intake, 79.2% (n= 172) *usually/often or sometimes* ate or drank less than 2-3 servings of milk, cheese, or yogurt, and 51.1% (n= 94) *usually/often* or *sometimes* consumed 2% or whole milk rather than skim or low-fat versions.

About 77% (n= 166) *usually/often* or *sometimes* ate beef, pork, or dark meat chicken more than two times per week, with 75.6% (n= 143) reporting that they *usually/often* or *sometimes* ate more than 6 ounces per day. Only 42.7% (n= 89) of patients reported *usually/often* or *sometimes* choosing higher-fat red meats. Almost two-thirds (63.3%, n= 138) reported *usually/often* or *sometimes* adding fats to foods at the table. The majority (76.7%, n= 160)

Table 3. Clinical characteristics of study patients with a completed or partially completed REAP

	n (%)
Body mass index (n= 214)	
Underweight: <18.5 kg/m^2	2 (0.9)
Healthy weight:18.5-24.9 kg/m^2	60 (28.0)
Overweight: 25.0-29.9 kg/m^2	67 (31.3)
Obese: ≥30 kg/m^2	85 (39.7)
History of cardiovascular disease (n= 219)	
No	202 (92.2)
Yes	17 (72.8)
History of hypertension (n= 219)	
No	142 (64.8)
Yes	77 (35.2)
History of diabetes (n= 219)	
No	182 (83.1)
Yes	37 (16.9)

Note: percentages may not add up to 100% due to rounding

usually/often or *sometimes* added fats instead of using cooking sprays when cooking. Furthermore, 66.8% (n= 145) report *usually/often* or *sometimes* eating fried foods.

Regarding the intake of sweets (question 21), 36% (n= 74) reported *usually/often* or *sometimes* eating sweets more than twice per day. About one-third (34.1%, n= 74) reported *usually/often* or *sometimes* drinking more than 16 ounces of SSB daily. When asked about eating high sodium processed foods, 45.7% (n= 99) indicated they *usually/often* or *sometimes* ate them, and 50.6% (n= 81) usually reported *usually/often* or *sometimes* adding salt while cooking. Only 15.8% (n= 34) usually reported *usually/often* or *sometimes* drinking more than 1-2 alcoholic drinks per day.

Thirty percent (30.4%, n= 63) reported *usually/often* or *sometimes* eating four or more meals per week from restaurants. More than half (61.3%, n= 133) *usually/often* or *sometimes* did less than 30 minutes of activity three days per week or more. About 72% (n= 134) *usually/often* or *sometimes* watched more than 2 hours of TV/videos per day. Most patients could shop and prepare their food (84.7%, n= 183), and only 10.0% (n= 21) reported having trouble shopping or cooking. The majority reported that they do not follow a special diet (73.5%, n= 158). Overall, 72.2% of patients indicate that they are *willing* (31.9%, n= 69) or *very willing* (40.3%, n= 87) to make dietary changes to eat healthier.

(Table 4 begins on next page.)

Table 4. Patient responses to REAP questions

In an average week how often do you:	n (%)
1. Skip breakfast? (n= 220)	
Usually/Often	52 (23.6)
Sometimes	57 (25.9)
Rarely/Never	**111 (50.5)**
2. Eat 4 or more meals from sit-down or take-out restaurants? (n= 207)	
Usually/Often	15 (7.2)
Sometimes	48 (23.2)
Rarely/Never	**144 (69.6)**
3. Eat less than 3 servings of whole-grain products a day? (n= 220)	
Usually/Often	**76 (34.5)**
Sometimes	89 (40.5)
Rarely/Never	55 (25.0)
4. Eat less than 2-3 servings of fruit a day? (n= 218)	
Usually/Often	**86 (39.4)**
Sometimes	69 (31.7)
Rarely/Never	63 (28.9)
5. Eat less than 3-4 servings of vegetables/potatoes a day? (n= 171)	
Usually/Often	60 (35.1)
Sometimes	**61 (35.7)**
Rarely/Never	50 (29.2)
6. Eat or drink less than 2-3 servings of milk, yogurt, or cheese a day? (n= 217)	
Usually/Often	**104 (47.9)**
Sometimes	68 (31.3)
Rarely/Never	45 (20.7)
7. Use 2% (reduced fat) or whole milk instead of skim (non-fat) or 1% (low-fat) milk? (n= 184)	
Usually/Often	**62 (33.7)**
Sometimes	32 (17.4)
Rarely/Never	40 (21.7)
Rarely use milk	50 (27.2)
8. Use regular cheese (like American, cheddar, Swiss, Monterey Jack) instead of low fat or part-skim cheeses as a snack, on sandwiches, pizza, etc.? (n= 216)	
Usually/Often	**98 (45.4)**
Sometimes	49 (22.7)
Rarely/Never	29 (13.4)
Rarely Eat Cheese	40 (18.5)

In an average week how often do you:	n (%)
9. Eat beef, pork, or dark meat chicken more than 2 times a week? (n= 215)	
Usually/Often	**124 (57.7)**
Sometimes	42 (19.5)
Rarely/Never	49 (22.8)
10. Eat more than 6 ounces (see size below) of meat, chicken, turkey or fish per day? (n= 189)	
Usually/Often	**76 (40.2)**
Sometimes	67 (35.4)
Rarely/Never	39 (20.6)
Rarely eat meat/chicken/turkey or fish	7 (3.7)
11. Choose higher fat red meats like prime rib, T-bone steak, hamburger, ribs, etc. instead of lean meats? (n= 208)	
Usually/Often	29 (13.9)
Sometimes	60 (28.8)
Rarely/Never	**101 (48.6)**
Rarely Eat Meat	18 (8.7)
12. Eat the skin on chicken and turkey and the fat on the meat (n= 193)	
Usually/Often	39 (20.2)
Sometimes	44 (22.8)
Rarely/Never	**99 (51.3)**
Never eat meat or poultry	11 (5.7)
13. Use regular processed meats (like bologna, salami, corned beef, hot dogs, sausage or bacon) instead of low-fat processed meats (like roast beef, turkey, lean ham, low-fat cold cuts/hotdogs)? (n= 179)	
Usually/Often	21 (11.7)
Sometimes	57 (31.8)
Rarely/Never	**71 (39.7)**
Rarely eat processed meats	30 (16.8)
14. Eat fried foods such as fried chicken, fried fish, or French fries? (n= 217)	
Usually/Often	40 (18.4)
Sometimes	**105 (48.4)**
Rarely/Never	72 (33.2)
15. Eat regular potato chips, nacho chips, corn chips, crackers, regular popcorn, nuts instead of pretzels, low-fat chips or low-fat crackers, air-popped popcorn? (n= 213)	
Usually/Often	41 (19.2)
Sometimes	**81 (38.0)**
Rarely/Never	64 (30.0)
Rarely eat these snack foods	27 (12.7)

In an average week how often do you:	n (%)
16. Use regular salad dressing & mayonnaise instead of low-fat or fat-free salad dressing and mayonnaise? (n= 216)	
Usually/Often	**68 (31.5)**
Sometimes	65 (30.1)
Rarely/Never	54 (25.0)
Rarely use dressing/mayonnaise	29 (13.4)
17. Add butter,margarine,or oil to bread, potatoes, rice, or vegetables at the table? (n= 218)	
Usually/Often	**74 (33.9)**
Sometimes	64 (29.4)
Rarely/Never	80 (36.7)
18. Cook with oil, butter, or margarine instead of using non-stick sprays like Pam or cooking without fat? (n= 208)	
Usually/Often	**93 (44.7)**
Sometimes	67 (32.2)
Rarely/Never	40 (19.2)
Rarely Cook	8 (3.8)
19. Eat regular sweets like cake, cookies, pastries, donuts, muffins, and chocolate instead of low-fat or fat-free sweets? (n= 216)	
Usually/Often	55 (25.5)
Sometimes	**74 (34.3)**
Rarely/Never	52 (24.1)
Rarely eat sweets	35 (16.2)
20. Eat regular ice cream instead of sherbet, sorbet, low-fat or fat-free ice cream, frozen yogurt, etc.? (n= 203)	
Usually/Often	42 (20.7)
Sometimes	**64 (31.5)**
Rarely/Never	57 (28.1)
Rarely eat frozen dessert	40 (19.7)
21. Eat sweets like cake, cookies, pastries, donuts, muffins, chocolate, and candies more than 2 times per day? (n= 206)	
Usually/Often	28 (13.6)
Sometimes	46 (22.3)
Rarely/Never	**100 (48.5)**
Rarely Eat Sweets	32 (15.5)
22. Drink 16 ounces or more of non-diet soda, fruit drink/punch, or Kool-Aid a day? (n= 217)	
Usually/Often	35 (16.1)
Sometimes	39 (18.0)
Rarely/Never	**143 (65.9)**

In an average week how often do you:	n (%)
23. Eat high sodium processed foods like canned soup or pasta, frozen/packaged meals (TV dinners, etc.), chips? (n= 217)	
Usually/Often	37 (17.1)
Sometimes	62 (28.6)
Rarely/Never	**118 (54.4)**
24. Add salt to foods during cooking or at the Table? (n= 160)	
Usually/Often	45 (28.1)
Sometimes	36 (22.5)
Rarely/Never	**79 (49.4)**
25. Drink more than 1-2 alcoholic drinks per day? (n= 216)	
Usually/Often	6 (2.8)
Sometimes	28 (13.0)
Rarely/Never	**182 (84.3)**
26. Do less than 30 minutes of physical activity 3 days a week or more?	
(n= 217)	
Usually/Often	75 (34.6)
Sometimes	58 (26.7)
Rarely/Never	**84 (38.7)**
27. Watch more than 2 hours of television or videos a day? (n= 187)	
Usually/Often	**86 (46.0)**
Sometimes	48 (25.7)
Rarely/Never	53 (28.3)
28. Usually shop and prepare your own food? (n= 216)	
Yes	**183 (84.7)**
No	33 (15.3)
29. Ever have trouble being able to shop or cook? (n= 211)	
Yes	21 (10.0)
No	**190 (90.0)**
30. Follow a special diet, eat or limit certain foods for health or other reasons? (n= 215)	
Yes	57 (26.5)
No	**158 (73.5)**
31. How willing are you to make changes in what, how, or how much you eat in order to eat healthier? (n= 216)	
Not at all willing (1)	7 (3.2)
Somewhat willing (2)	4 (1.9)
Neutral (3)	49 (22.7)
Willing (4)	69 (31.9)
Very willing (5)	**87 (40.3)**

Bold n(%) indicate the highest response rate based on frequency

DISCUSSION

This study fills a gap in the literature about dietary pattern assessment in a dental setting. To our knowledge, no published studies report on the assessment of diet patterns in a dental clinic setting. While a few studies evaluated dietary patterns,[37-40] only one other study[39] that used the validated REAP tool to assess dietary patterns has been published. Thus, these responses provide insight into the overall dietary patterns of the patients seen at a northeastern dental school clinic.

The 2020 DGA recommends following a dietary pattern rich in fruits and vegetables, whole grains, low-fat dairy, lean proteins, and non-tropical oils while limiting added sugars, saturated fats, and sodium.[1] In this sample, the majority did not eat the recommended servings of whole grains, fruit, or vegetables and drank higher fat versions of dairy products, which does not follow the ideal dietary patterns recommended by the DGA. About half of the sample aligned with the DGA's recommendations to consume more lean protein. Only 13.9% report *usually/often* eating higher fat meat, and less than half exceeded eating more than 6 ounces of meat, chicken, turkey, or fish per day. Most patients reported *rarely/never* or *sometimes* eating high sodium processed foods or adding salt to food while cooking, which follows the DGA guideline to limit sodium.

Though almost one-half of the patients (48.5%) reported *rarely/never* eating sugar in the form of sweets more than twice per day, and 65.6% *rarely* drank more than 16 ounces of SSB, there are still opportunities for improvement and education. High consumption of sweets or SSB may compromise oral health as sugars and SSB may contribute to caries risk. Reducing consumption of sweets and SSB could be addressed through diet education provided by the oral health professional or RDN.[46] Blostein et al. reported that in those over 30 years old, diets higher in SSB and sandwiches were associated with decayed, missing, and filled teeth.[26] Guo et al. found that young adults with higher caries activity ate more sugar and fewer fruits, vegetables, and fiber based on a food diary and food frequency questionnaire.[28] Overall, the dietary patterns of this sample were not aligned with the DGA dietary pattern to eat whole grains, fruit, vegetable, and low-fat dairy, including more low-fat meats, poultry, seafood, nuts, seeds, and soy products and limiting added sugars.[1] Like our findings, most Americans eat more refined grains, more meats, poultry, and eggs, and fewer fruits and vegetables than recommended.[1,47]

Most patients reported rarely eating out, which may be due in part to the data collection period, which coincided with the COVID-19 pandemic. Many restaurants were closed during this period, and people stayed home; thus, data about eating out may differ during non-pandemic times. Overall, eating out is associated with less healthy dietary patterns,[48] including increased calorie, fat,[49] and sodium intake.[50]

As the data demonstrate that the dietary patterns of patients in the dental school clinic do not align with the 2020 DGA, and as 70% of the patients indicated a willingness to change, there is an opportunity for interprofessional teams of dentists, dental students, RDNs, and dietetics students to work together to improve nutrition, oral, and systemic health outcomes. An interprofessional approach requires integration into a practice environment, working outside perceived "silos," and establishing connections.[51] At this school of biomedical and health sciences, dental students complete nutrition education as part of their curriculum and perform diet assessment and education competencies on their patients as part of their degree requirements. Additionally, graduate dietetics students have the opportunity to rotate in the dental clinic, where they learn from dental students about oral health. Both dietetics and dental students have an opportunity at the dental school clinic to meet competencies by engaging in robust IPE and IPP. Establishing this relationship early could lead dentists and RDNs to consider their

interrelated roles in both oral and systemic health, enhancing IPP and holistic, patient-centered care.

Strengths and limitations

Several limitations should be addressed regarding this study. All of the data regarding height, weight, and medical conditions were self-reported and as such, may have been reported inaccurately. It is possible that patients or caregivers misinterpreted the questions or did not provide accurate answers, and the choices (e.g., *often* or *sometimes*) are not clearly defined in the original REAP study validation; thus, the interpretation of the responses may have varied from person to person. Finally, the data collection period occurred during the COVID-19 pandemic when there were limitations on in-person interactions, mask requirements, and fear of infection. People may also have changed their dietary intake during the pandemic as they worked from home, restaurants closed, and they relied on grocery delivery. One international survey by Ammar et al. reported an increase in the consumption of unhealthy food, more eating out of control, and snacking between meals during the pandemic.[52] In contrast, Flanagan et al. described improved healthy eating scores, likely due to reduced food eaten outside the home.[53] The pandemic may have altered eating habits either positively or negatively, thus affecting the results of our study. This study was also descriptive in nature, so therefore one cannot examine causal relationships.

There are several notable strengths of this study. To our knowledge, this was the first study to use the REAP tool in a dental setting, which is a novel setting to assess dietary patterns and provides another patient touchpoint for diet and lifestyle risk screening related to oral and systemic health. Another strength is that a validated screening tool was used to assess dietary patterns. The REAP tool provides a snapshot of dietary intake and provides talking points to quickly and immediately address dietary concerns related to oral health.

CONCLUSION

This study explored the dietary patterns of patients seen in the dental clinic setting by evaluating the frequency of patients' responses to each question on the validated REAP. Most did not eat the recommended amounts of fruits, vegetables, or whole grains, indicating overall suboptimal dietary patterns that do not align with the DGA. Overall, about half of this sample ate sweets more than twice per day, and about one-third drank more than 16 ounces of SSB daily, which may increase their risk for obesity and non-communicable diseases such as diabetes, HTN, or CVD. However, over 70% of patients in this study were receptive to changing dietary habits, perhaps offering an opportunity for IPE and IPP in dental clinics where dental and dietetics students, dentists, and RDNs, can provide nutrition education which can lead to improving dietary patterns and overall health. Evaluating dietary patterns in a dental setting is a novel area to promote IPE and IPP and provide collaboration opportunities to improve health outcomes.

IMPLICATIONS FOR RESEARCH AND PRACTICE

This study supports the feasibility of using a validated tool like the REAP to collect and assess data about patients' dietary patterns in a dental clinic setting. Dental students can work with RDNs, and dietetics students can work with dentists to reinforce their knowledge of the associations between diet, oral health, and systemic health as part of a standard curriculum that emphasizes a comprehensive interprofessional approach to patient assessment and intervention. In practice, dentists can identify suboptimal diet patterns, especially concerning oral health, and provide brief diet education that can improve diet quality and oral health and ultimately improve patients' overall health and well-being. Additionally, they can refer to an RDN for more comprehensive education. Given that patients were receptive to making dietary changes, using a tool such as REAP in this setting may provide opportunities for

education or referral to a primary care physician or an RDN for further intervention and management.

Subsequent studies could be done post-COVID-19 pandemic as eating patterns may have shifted once again. More dental clinics in varied geographical areas to better represent the demographic make-up of the US would further elucidate the benefits of this interdisciplinary tool. Furthermore, an overall diet quality score could be calculated to assess overall diet quality better. More emphasis could be placed on creating interprofessional teams that include student dentists and dietetic students evaluating health outcomes. This study lays the foundation for additional research on assessing dietary patterns in the dental setting.

CONFLICTS OF INTEREST

The authors report no conflicts of interest.

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