


Patient-Centered Culturally Tailored Diet for Hospitalized Patients With Type 2 Diabetes Mellitus

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Type 2 diabetes mellitus management is largely influenced by dietary practices. The American Diabetes Association recommends considering patient culture when developing dietary recommendations. In this pilot evidence-based practice change initiative, patient educational sessions were initiated in the hospital setting that incorporated a patient-centered, culturally tailored diet. To evaluate the impact of the educational sessions, the patients completed the Patient-Centered Culturally Tailored Diet Questionnaire and constructed a meal on a 9-inch plate. A total of 11 patients participated in the pilot project. Patients' dietary practices improved after the intervention, as evidenced by an increase in their Patient-Centered Culturally Tailored Diet Questionnaire scores. Furthermore, most of the patients were able to successfully design a menu using a 9-inch plate. Patients felt motivated to implement changes in their diet, which could be related to their acute crisis and hospitalization. Some expressed the opinion adhering to the dietary practice was challenging, whereas others embraced the challenge and remained motivated to make lifestyle changes.

Type 2 diabetes mellitus (T2DM) is a complex chronic condition that affects nearly 38.4 million adults (11.6% of the population) in the United States.¹ American Indian/Alaska Native, non-Hispanic Black, and Hispanic/Latino are disproportionately affected by diabetes compared to their non-Hispanic White counterpart.¹ This may be partially due to social determinants of health as many reside in low-income city housing and in areas that are considered underserved.² One of the significant approaches to managing T2DM should be recommendations that incorporate dietary practices, are comprehensive, patient-centered and integrate the patient's culturally preferred foods. Evidence has shown that acknowledging a patient's culture has shown to increase patient engagement.³

Two randomized controlled trials and 1 mixed-methods systematic review focused on applying culturally tailored diets within the African American, Asian, and Hispanic ethnic groups, which included 450 participants. These studies indicated diabetic nutritional education centered around the participant's food preference helped to increase knowledge regarding correct portion sizes and dietary practice ($P < .01$) with a mean satisfaction of 2.7 out of 3 and a 60% reduction

in HbA_{1c} ($P < .05$).⁴⁻⁶ The inclusiveness of the patient's culture and dietary preferences allows the patient to eat the foods they enjoy in a manner that keeps them connected to their culture while benefiting their overall health.⁷

Although there is not one recommended diet for patients with diabetes, the American Diabetes Association (ADA) recommends a lower-carbohydrate and lower-sugar diet with an emphasis on whole-grain foods, fruits, and vegetables.⁸ Diet is often one of the most challenging aspects for patients in managing their T2DM, as it impacts all facets of an individual's life and requires daily choices that support a healthier food intake. Culture influences the patient's dietary choices, which are often deeply rooted in traditions and social norms.

Food selection may directly align with cultural and ethical practices, and for patients with a rich cultural heritage, the foods eaten may come from indigenous practices that span decades.⁹ Piombo et al¹⁰ highlighted that dietary recommendations for patients with diabetes should be tailored around a patient's cultural preferences with the goal of increasing individualized approaches and adherence to a healthier diet.

Many people residing in America, regardless of heritage and culture, have difficulty adhering to healthy dietary practices, especially with the convenience of fast foods and take-out foods.¹⁰ This challenge is also seen in patients whose health is directly impacted by the foods they consume, such as those with T2DM.¹¹ One study used the Perceived Dietary Adherence Questionnaire to evaluate ADA diet adherence among those with T2DM and found the rate to be as low as

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41%.¹² Patients with diagnoses of diabetes are often resistant to dietary restrictions, no matter how well plans and recommendations are laid out.¹⁰ Therefore, the aims of this pilot evidence-based practice initiative change were to (1) increase patients' knowledge and adherence to evidence-based dietary recommendations; (2) improve the patients' ability to plan and design a meal using their culturally preferred foods; and (3) identify and describe barriers to implementing culturally tailored diets.

METHODS

Design, Setting, and Sample

This pilot evidence-based practice initiative used a pre/post design for evaluation and was conducted at a tertiary care teaching hospital located in New York City. In this inpatient setting, the patients are primarily of Hispanic and African descent and present with multiple comorbidities in which diabetes, especially T2DM, is often an associated factor.¹³

The diabetes consultation service consists of 4 nurse practitioners (NPs), 1 registered dietitian, and an attending physician (endocrinologist) who oversees the patient's care related to diabetes. The diabetes service is often consulted to provide best practices in managing the patient whose HbA_{1c} is elevated or if it is anticipated that the glycemic levels will increase due to medication side effects as seen with the use of steroids. Providers identified that dietary nonadherence is a major contributing factor to elevated glycemic levels that if not properly managed can lead to prolonged hospitalization or readmissions.

To improve adherence to dietary recommendations, the diabetes consultation service implemented a pilot evidence-based practice initiative that enhanced the current standard of care. A Patient-Centered Culturally Tailored Diet (PCCTD) approach was used, which is a dietary strategy that involves incorporating the patient's cultural, ethnic foods and their preferences when designing and making dietary recommendations.⁹ The nurse practitioner (NP) conferred with the dietitian when developing cultural dietary plans. Additionally, the dietitian recommended alternative snacks and beverages based on cultural preferences, as well as recommendations on fruit consumption. These recommendations were discussed with each patient in the pilot evidence-based practice initiative during the initial consultation and reinforced during each follow-up visit or phone call.

Process

For all individuals who self-identified as African American/Afro-Caribbean Blacks, or Hispanic/Latino ethnicity, the NP lead provided 1:1 education on a patient-centered culturally tailored diabetic diet during their hospital admission. All patients had a diagnosis of T2DM. All patients were treated with respect and dignity, highlighting the importance of each cultural practice.

During their hospital stay, the NP provided comprehensive educational sessions to the patient regarding the role of diet in managing T2DM and the effects of nonadherence to diet, such as elevated glycemic levels and HbA_{1c}. Education also included information about the US Department of Agriculture's MyPlate Method adapted by the ADA. The recommended

portion and rationale for different food groups on the plate and how they can structure the foods they enjoy that align with ADA Diabetes Plate guidelines were provided.⁷ The patient was provided with written and visual education materials along with an information packet that contained culturally centered dietary plans using the MyPlate Method specific to their ethnic and cultural dietary practices, which was designed by The Institute for Family Health.^{7,14} For example, a recommended meal would be to have one-fourth of the plate protein (such as jerk chicken), one-fourth starch (such as baked macaroni and cheese), and one-half nonstarchy vegetable (such as steamed cabbage Caribbean style). Images of different foods and plates with cultural foods were provided so that patients could see the foods, in case the names differed from those used in other ethnic groups.¹⁴ More importantly, the NP explained how the patient's current admission was related to elevated, uncontrolled T2DM. This approach to care gave a personal, real-life account of the effects of glycemic levels, making it relatable to the patient. During the educational visit, the patient was asked to complete the PCCTD Questionnaire to determine their baseline dietary practices and adherence to ADA dietary recommendations.

A flyer was included in the informational packet that provided information on how to connect with the NP after discharge from the hospital for support sessions via an online meeting platform. During each follow-up visit while the patient was hospitalized, the NP would inquire if there were any questions regarding dietary practices that the patient would like to discuss. Lastly, the NP reiterated that a follow-up call would be made to evaluate their progress, via the PCCTD Questionnaire, and to ask the patient to apply their knowledge of the dietary change by constructing a meal on a 9-inch diagram plate using the MyPlate Method.

After discharge, the NP project leader provided optional online group sessions for the patients to highlight dietary victories, setbacks, barriers, and other concerns in a nonjudgmental environment. Approximately 4 weeks after discharge, the patients were contacted by phone to complete the evaluation of the practice change.

Measures and Data Collection

To evaluate the impact of the educational sessions, the United Kingdom Diabetes and Diet Questionnaire, which was originally developed and validated to evaluate dietary practices among the White British population, was modified to mimic foods within the Black and Hispanic/Latino culture.^{15,16} The modified questionnaire, named the PCCTD Questionnaire, was written at a level appropriate for fifth graders. Face validity was assessed by having 4 members of the project team review the questionnaire and provide feedback.

The PCCTD Questionnaire consisted of 8 questions that were focused on the patient's current dietary practices. Responses were rated using a 6-point Likert scale (1 = never or very rarely; 2 = once a week or less often, 3 = 2 to 4 times a week, 4 = 5 to 6 times a week, 5 = 1 to 2 times a day, and 6 = ≥ 3 times a day), as in the original United Kingdom Diabetes and Diet Questionnaire. Five items were reverse coded due to wording. The total scores for the 8 diet-related questions ranged from 8 to 48, with higher scores indicating the patient-reported healthier dietary habits.

Patients were provided with the PCCTD Questionnaire on paper during their hospital admission (baseline) and 4 weeks after discharge in which the questions were asked over the phone. During the follow-up phone call, patients were also asked to design a meal of culturally preferred foods using a 9-inch paper plate diagram. To determine the portion or percentage of the plate that aligned with ADA recommendations, patients were scored by how well portions and types of food items were identified correctly on the plate for each of the 3 main groups of food including starches (one-fourth of the plate), lean protein (one-fourth of the plate), and vegetables (one-half of the plate).⁷ The scoring system for each food group was as follows: 1 = not correct, 2 = somewhat correct, and 3 = correct; the total possible score for each patient ranged from 3 to 9. Higher scores indicated better alignment with ADA recommendations. Patients were scored a 3 (correct) if they included the appropriate portion and food group on the plate for each of the 3 main food groups, with a total possible score of 9. Patients were scored a 2 (somewhat correct) if they correctly identified only either the portion or type of food; for example, 1 patient correctly identified that baked fish was a lean protein source (type of food) but incorrectly identified that it should be one-half of the plate instead of one-fourth of the plate. Patients were scored a 1 (not correct) if they were not able to correctly choose the recommended portion size or food type.

RESULTS

Eleven patients were provided with the culturally tailored nutrition education sessions while hospitalized and completed the PCCTD Questionnaire at baseline. Four weeks after being discharged from the hospital, 9 of the 11 patients completed the post-PCCTD Questionnaire. Among the 11 individuals, 1 died before completing the follow-up, and 1 did not respond to follow-up attempts. Data were evaluated for only the 9 individuals who completed both the baseline and postdischarge PCCTD Questionnaire. The mean baseline dietary practices

score was 34.4 (SD, 0.89; range, 3-5.6), which increased 13.5% to 39.1 (SD, 0.74; range, 3.2-5.8) at 4 weeks postdischarge (Table). At the 4-week follow-up, 7 patients appropriately designed a meal on a 9-inch plate (score of 9); 2 patients received a mean score of 7. The total mean score among the 9 patients was 8.5. The Figure shows an example of an incorrect and correct description made by patients.

During follow-up phone calls, patients reported that the main beverage they drank was water or diet soda. Snacks consisted of fruits and baked snacks. Two patients admitted that they struggled with avoiding snacks such as cakes, chips, and cookies brought into the home by other family members.

Although online sessions for weekly follow-up were offered to all patients, none of the patients attended due to various reasons, including previous appointments and lack of a smart device, even though dial options were provided and reinforced with the patients. The NP project leader contacted the patients each week via telephone or text message to remind them about the online sessions; however, the patients preferred to speak directly on the phone about their progress and commitment to dietary changes. Results were shared with patients so that they could see if their dietary practices improved or if there were areas they needed to continue to focus on for diabetes management.

DISCUSSION

Educational sessions during their inpatient hospital stay helped patients see that they could use their own cultural foods within their diet while aligning with ADA recommendations. Most of the patients understood how to design a menu using their preferred foods. Most of the patients understood how to design a menu using their preferred foods. Those who had difficulties, such as one patient who indicated that they would consume a one-half plate of corn because this was their favorite vegetable, were reminded that although corn is a vegetable, it is considered a starch due to its glycemic content and should be limited to one-fourth of the plate as outlined in the MyPlate Method guidelines.

TABLE

Patient's Responses to the Patient-Centered Culturally Tailored Diet Questionnaire Regarding Their Eating Habits Before the Quality Improvement Project and at the 4-Week Mark

Questions (Rated on a 1- to 6-Point Likert Scale)	Pre Questionnaire, Post Questionnaire,	
	Mean (SD) n = 9	Mean (SD) n = 9
1. How often do you eat a portion of vegetables? Include fresh, canned, and frozen vegetables, and beans, such as black beans, pinto beans, lentils, butter beans, black-eyed peas, sweet peas, and Navy beans.	4.3 (1.6)	4.8 (0.8)
2. How often do you eat a portion of fruit? Include fresh, frozen, canned and dried fruit. Do not count fruit juices.	3.0 (1.6)	3.2 (1.6)
3. How often do you choose water more than sugary drinks?	5.6 (1.3)	4.9 (2.2)
4. How often do you eat sweets, chocolate, or sugary foods like churros, pastries, flan, red velvet cake, ice cream, cheesecake, or peach cobbler? ^a	4.2 (1.3)	5.1 (1.4)
5. How often do you drink sugary drinks? Include nondiet soda, energy drinks, fruit juices, hot chocolate drinks or coffee, tea, or other hot drinks with sugar or flavored syrups. ^a	4.3 (1.9)	5.0 (1.7)
6. How often do you eat cold cuts and deli meats like salami, ham, turkey, hog head cheese, pig feet, or liverwursts? ^a	3.7 (1.8)	5.2 (1.4)
7. How often do you drink alcohol such as beer Budweiser, Colt 45, Corona, Heineken, tequila, vodka, rum, piña colada, etc? ^a	5.6 (0.9)	5.8 (0.4)
8. How often do you eat savory foods like crisps, corn chips, corn puffs, plantains chips, salted nuts, or Bombay mix? ^a	3.8 (1.4)	5.1 (0.9)

^aReverse coded.

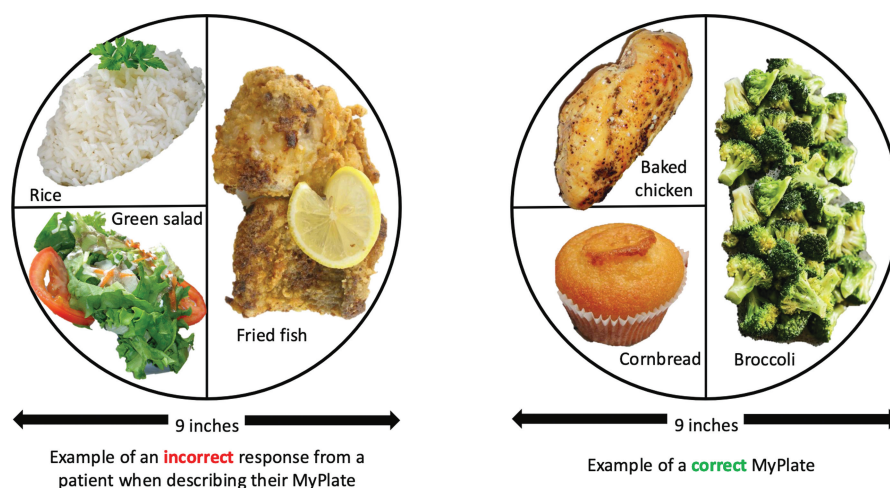


FIGURE. Example of an incorrect and correct description of food choices made by patients.

The patients expressed understanding that food preparation was essential, with all choosing either to bake, broil, air-fry, or oven roast their foods. They also correctly identified the amount of starch they should consume with meals. Patients expressed feeling empowered to change their diet because they were included in constructing their dietary meals without compromising their preference or cultural foods. This initiative aligns with ADA findings that dietary educational sessions should be centered on the patient's cultural and food preferences⁷; similarly, Piombo et al¹⁰ found that the patient-centered, culturally tailored approach improved patient's adherence to recommended dietary practices.

Although the result of this pilot evidence-based practice initiative change is favorable, many patients expressed that following the ADA recommendations was a challenge at times due to the easy accessibility to foods high in sugar, fat, and cholesterol that they have eaten for decades, especially when the food was in the home or neighborhood stores. Sińska and Kucharska¹¹ also identified challenges with navigating food choices and portion size that can impact adherence to a diabetes diet.

Patients indicated that although they felt motivated to change their dietary regimens, it took a conscious effort to align with the recommendations at times. This was due to difficulties of breaking old habits and the availability of food at home; this was particularly challenging for male patients who do not usually buy groceries at home. According to one patient, his children bring food into the home that they enjoy but that is not suitable for him as it is processed and has high fructose and other sugars.

Patients may find it easier to adhere to a diabetes diet with frequent interaction by healthcare professionals. Following the intervention, all patients expressed interest in telephonic follow-up calls, which may help them better understand and adhere to dietary practices that will help them manage their T2DM.

Limitations

This pilot evidence-based practice initiative change included a small number of patients. Additionally, due to the short follow-up period (4 weeks), it is unclear if the educational

sessions led to better long-term adherence and decreased HbA_{1c} levels. The use of this practice in the daily interaction with the patient can be a valuable tool in helping the patient stay vigilant in monitoring the foods they consume and the foods they increase or reduce to align with healthcare guidelines, such as ADA, which specialize in diabetes care.

The modified PCCTD Questionnaire was not subjected to additional psychometric testing, which is a project limitation. Testing the validity of the modified PCCTD Questionnaire, especially among ethnically diverse populations, would help validate this adopted tool. Another limitation was the lack of options for the online sessions. Offering more time slots is one possible way to increase online session attendance. Incentives such as a certificate of attendance, raffle prizes, or a 1-time gift card for a grocery allowance may also be an option for those who attend all sessions. Additionally, the results of this pilot evidence-based practice initiative are limited to the ethnic groups included at this hospital setting, although the concept of using a PCCTD could be transferred to other patient populations and settings. Because this initiative began during the participant's inpatient hospital stay, family members were often not available to play an active role in the patient's care. The lack of family involvement during the initiative may be a limitation as many of the patients involved did not shop or prepare their meals.

Practice and Research Implications

The implementation of this type of initiative can provide a comprehensive assessment of the needs of the patient and their dietary practices, which can help identify what foods the patient is eating and how they can be modified to fit ADA dietary recommendations. During this pilot evidence-based practice initiative change, patients were able to answer the PCCTD Questionnaire between 3 and 5 minutes. This questionnaire is best provided during the initial diabetes consultation when important data are typically gathered from the patient. With this information, the provider can develop a patient-centered culturally tailored diet plan for the patient based on their current dietary practices and preferences. Future initiatives may consider focusing

the follow-up visits on the patient's normal dietary habits and how these fit into the MyPlate Method. This could be accomplished by having the patient verbalize their food preference and what they routinely eat.

CONCLUSION

The use of PCCTD sessions prior to hospital discharge helped patients identify the importance of their diet in managing their T2DM, especially during an acute phase of their admission where there are interdisciplinary health professions readily available to give insight and guidance when knowledge deficits are identified. The use of a PCCTD for a patient's ethnic and cultural preference is vital in providing a comprehensive solution to the disconnect often expressed by patients of different cultural backgrounds when provided with dietary recommendations for managing T2DM. The patients who participated in this initiative verbalized a sense of feeling empowered and motivated to continue this dietary lifestyle change long-term. This initiative further solidifies that a diet centered around the patient's culture and preference plays an important role in adherence to a dietary plan that promises long-term benefits. Based on the results of this pilot practice change, the PCCTD education process will be expanded to all patients regardless of ethnic and cultural background as the usefulness of the PCCTD approach crosses all social and cultural backgrounds. Follow-up will be integrated with the patient's preferred platform/mode of communication so that the technology is also tailored to produce best outcomes.

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