

ORIGINAL ARTICLE

Shared Medical Appointments: A Portal for Nutrition and Culinary Education in Primary Care—A Pilot Feasibility Project

医疗预约共享—初级医疗的营养和烹饪教育端口：试验可行性项目

Visitas médicas compartidas —Portal de nutrición y educación culinaria en la atención primaria: Proyecto piloto de viabilidad

Helen K. Delichatsios, MD, SM, *United States*; Michelle E. Hauser, MD, MPA, *United States*; Jonathan D. Burgess, BS, *United States*; David M. Eisenberg, MD, *United States*

ABSTRACT

Introduction: Diseases linked to obesity such as cardiovascular disease, diabetes, degenerative joint disease, gastroesophageal reflux, and sleep apnea constitute a large portion of primary care visits. Patients with these conditions often lack knowledge, skills, and support needed to maintain health. Shared medical appointments (SMAs) that include culinary skills and nutrition education offer a novel, cost-effective way to address these diseases in primary care.

Methods: Adult patients in a primary care practice at a large academic hospital in Boston, Massachusetts, who had at least 1 cardiovascular risk factor were invited to participate in SMAs that included cooking demonstrations and teaching about nutrition in addition to medical management of their conditions. Sessions were conducted by a physician and an assistant in a conference room of a traditional primary care practice as part of a pilot feasibility project.

Results: Seventy patients, contributing a total of 156 patient visits, attended 17 nutrition-focused SMAs over a 4-year period. Patients were surveyed after each visit and indicated that they enjoyed the SMAs, would consider alternating SMAs with traditional one-on-one visits, and would recommend SMAs to others. Half would pay out of pocket or a higher copay to attend SMAs. Financially, the practice broke even compared with traditional one-on-one office visits.

Conclusion: In this feasibility study, chronic disease SMAs conducted with a culinary/nutrition focus were feasible, cost-effective, and well received by patients. Follow-up studies are needed to evaluate short- and long-term outcomes of this SMA model on obesity-related diseases.

摘要

简介: 与肥胖有关的疾病, 比如心血管疾病、糖尿病、退行性关节炎病、胃食管反流和睡眠呼吸暂停, 是初级护理访视的很大一部分内容。患有这些疾病的患者往往缺乏保持健康所需的知识、技能和支持。包括烹饪技术和营养教育的共享医疗约诊 (shared medical appointments, SMA) 为在初级护理中解决这些疾病提供了一种新颖、成本效益高的方式。**方法:** 在马萨诸塞州波士顿一家大型学术性医院接受初级护理、有至少 1 项心血管风险因素的成人患者受邀参加 SMA, 这些约诊除对其病情进行医学管理外, 还包括烹饪示范和营养教学。作为试点可行性项目的一部分, 课程由一名医生和一名助理在传统初级护理工作会议室进行。

结果: 在 4 年时间内, 七十名患者, 共进行了 156 次患者访视, 参加了 17 次以营养为重点的 SMA。在每次访视后对患者进行了调查, 他们表示很喜欢 SMA, 将考虑用 SMA 代替传统的一对一访视, 并愿意向其他人推荐 SMA。半数患者愿意自行付费或支付较高自付比例参加 SMA。在费用方面, 这种诊疗方式和传统的一对一诊所访视旗鼓相当。

结论: 在该可行性研究中, 所开展的关注烹饪/营养的慢性疾病 SMA 是可行的, 不仅成本效益高, 而且患者也能够很好地接受。需要进行后续研究以评估该 SMA 模式对肥胖相关疾病的短期和长期结果。

SINOPSIS

Introducción: Las enfermedades asociadas a la obesidad, como la enfermedad cardiovascular, la diabetes, la enfermedad articular degenerativa, el reflujo gastroesofágico y la apnea del sueño constituyen un porcentaje grande de las visitas de atención primaria. A los pacientes con estas afecciones les suelen faltar los conocimientos, las destrezas y el apoyo que se necesitan para mantener la salud. Las citas médicas compartidas (CMC) que incluyen habilidades culinarias y educación sobre nutrición ofrecen un modo novedoso y eficaz de abordar estas enfermedades en la atención primaria.

Métodos: Se invitó a pacientes adultos de una consulta de atención primaria de un gran hospital académico de Boston, Massachusetts, que tenían al menos 1 factor de riesgo cardiovascular a participar en CMC que incluían demostraciones de cocina y educación sobre nutrición además del tratamiento médico de las enfermedades. Impartieron las sesiones un médico y un ayudante en una sala de conferencias de una consulta de atención primaria tradicional como parte de un proyecto piloto de viabilidad.

Resultados: Setenta pacientes, que suponían un total de 156 visitas de

Author Affiliations
Massachusetts General Hospital and Harvard Medical School, Boston (Dr Delichatsios); Stanford Prevention Research Center, Stanford University School of Medicine, Palo Alto, California, and San Mateo Medical Center, Fair Oaks Health Center, Redwood City, California (Dr Hauser); Geisel School of Medicine at Dartmouth College, Hanover, New Hampshire (Mr Burgess); Department of Nutrition, Harvard School of Public Health, Boston, Massachusetts (Dr Eisenberg).

Correspondence
Helen K. Delichatsios, MD, SM
hdelichatsios@partners.org

Citation
Global Adv Health Med. 2015;4(6):22-26. DOI: 10.7453/gahmj.2015.060

Key Words
Shared medical appointments, nutrition, culinary education, pilot study

Disclosures
The authors completed the ICMJE Form for Disclosure of Potential Conflicts of Interest and had no conflicts to disclose.

Funding
HKD received a Winickoff Primary Care Fellowship for help in setting up shared medical appointments. MEH is funded by NIH grant 5T32HL007034-39.

pacientes, acudieron a 17 CMC centradas en la nutrición durante un período de 4 años. Se encuestó a los pacientes después de cada visita e indicaron que habían disfrutado de las CMC, se plantearían alternar las CMC con visitas individuales tradicionales y recomendarían las CMC a

otras personas. La mitad pagaría de su propio bolsillo las CMC o un copago más elevado. Económicamente, la consulta cubrió los gastos en comparación con las visitas individuales a la consulta.

Conclusión: En este estudio de viabilidad, las CMC de enfermedades

crónicas realizadas que se centraron en la cocina/nutrición fueron viables, rentables y bien recibidas por los pacientes. Se necesitan estudios de seguimiento para evaluar los resultados a corto y largo plazo de este modelo de CMC sobre enfermedades relacionadas con la obesidad.

INTRODUCTION

Obesity-related diseases constitute a large portion of visits to primary care practices.¹ Many such conditions, including metabolic syndrome, cardiovascular disease, diabetes, degenerative joint disease, gastrointestinal reflux, and sleep apnea, are largely a direct consequence of our modern lifestyle. Patients wish to improve their habits and maintain health but often lack the knowledge, skills, motivation, and support to improve their dietary choices and meal preparation.^{2,3} Though clinicians are encouraged to counsel patients about nutrition and behavior change, limitations include lack of time, financial incentive, and skills.^{4,5}

In our evolving healthcare system, group visits are gaining traction as an efficient method of healthcare delivery—particularly for conditions requiring significant amounts of patient education.⁶ Shared medical appointments (SMAs) are a type of group visit where individual patient medical issues are addressed in a group setting.⁷⁻⁹ Patients participating in SMAs learn from interactions between the clinician group leader, ancillary staff, and other patients and are encouraged to contribute their own experience and insight. The group milieu allows ample time to address common challenges and for patients to set individual goals.¹⁰

As primary care clinicians are being asked to provide increasingly complex care for a growing number of patients with chronic conditions, successfully incorporating the concept of SMAs in primary care to provide education on nutrition becomes very relevant to patient care. Published reports on nutrition-related SMAs have focused on diabetes and other chronic conditions with many different models (eg, some led by physicians, others by allied health professionals).^{7-9,11,12} In another study, a combination of didactic and experiential culinary learning enabled medical professionals to alter their personal nutritional behaviors.¹³ To our knowledge, at the time this feasibility study began, a similar group-based culinary literacy intervention has not been tried in a primary care setting as a means of modifying dietary behaviors in those with or at risk of obesity-related disease. The purpose of this pilot project was to determine the feasibility of an innovative SMA model that focuses on culinary skills as a method to teach nutrition concepts to patients with metabolic conditions.

METHODS

Setting and Participants

This study was conducted in a medium-sized pri-

mary care practice at a large academic hospital in Boston, Massachusetts. Adult patients with metabolic disorders (hypertension, diabetes, coronary artery disease, hyperlipidemia, obesity) were encouraged to schedule follow-up visits for their chronic conditions in a SMA setting. The invitations were offered during a usual office visit with their physician and also sent electronically via a secure patient portal to patients. Patients were invited to attend 1 or more sessions, which were offered monthly in the fall and spring.

The SMAs were 90 minutes in duration with 6 to 12 patients in attendance per session. They were conducted during regular office hours in the primary care practice conference room. The conference room was equipped with a white board, computer and projector, meeting table, and chairs. No special culinary equipment beyond cutting boards, knives, mixing bowls, spoons, and towels was required.

Prior to Shared Medical Appointment Session

Ten to 14 patients were scheduled per session, with the goal of having 8 to 10 patients attend per session. Usual office staff (front desk and medical assistants) provided general support for these sessions. The patients checked in 15 minutes before the session, paid the same copay they would pay for a one-on-one follow-up visit, if any, and were seated in the conference room. The medical assistants called the patients one by one to measure vital signs (blood pressure, heart rate, and weight). At the start of each session, patients completed 3 forms: (1) medication reconciliation, (2) medical questions and concerns they would like to discuss in the SMA, and (3) a confidentiality agreement stating that they would not share sensitive or personally identifying information outside of the session.

Personnel Used During Visit

The sessions were led by one physician who was in the conference room for the entire session. One assistant was present at most SMAs. The assistant was often a third-year medical student rotating through the clinic on his or her ambulatory medicine rotation. Occasionally, the assistant was a chef (MEH, JDB). The assistant facilitated patient discussions to aid in creating a positive group dynamic while patients waited for others to check in prior to commencement of each session; they also helped with session flow. The first part of each SMA focused on patients' medical issues, addressing at least 1 issue per patient. The topics were

Table Sample Curriculum, Nutrition Topics, and Recipes for Culinary Nutrition-based Shared Medical Appointments

Disease Topic(s) ^a	Nutrition Topic(s) ^a	Cooking Demonstration: Recipe and Ingredients	Total Cost ^b
Diabetes	Hidden sugars and nutrition labels	Yogurt parfait: Non-fat Greek yogurt layered with berries, topped with almonds and a drizzle of honey	\$19
Coronary artery disease and hypertension	Healthy fats and sodium	Greek salad: Tomatoes, cucumbers, red onion, feta cheese, Kalamata olives, homemade balsamic vinaigrette	\$20
Inactivity and osteoarthritis	Nuts and dark chocolate	Trail mix: Almonds, peanuts, raisins, dried cranberries, dark chocolate chips	\$16
Obesity and sleep apnea	Whole grains	Brown rice salad: Brown rice, red and green bell peppers, jalapeno, scallion, carrots, cucumbers, cilantro, and citrus vinaigrette	\$17
Fatty liver disease and gastroesophageal reflux disease	Vegetables and carbohydrates	Thai spring rolls: Rice paper wrappers, cucumbers, carrots, red bell pepper, bean sprouts, cabbage, mint, cilantro, and lime-peanut dipping sauce	\$19
Hyperlipidemia and kidney disease	Legumes and healthy protein sources	White bean salad: Small white beans, sage, parsley, olive oil, lemon juice, red onion, tomatoes	\$14
Weight loss strategies	Fruits and hidden sugars	Green smoothie: Unsweetened soy milk, flax seeds, frozen berries, banana, and spinach (protein powder optional)	\$12

^a Sessions were guided by patients' own diagnoses and questions, so there was much overlap and integration from one session to the next.

^b Total cost for entire recipe (~15 large sample-sized servings) was calculated for ingredients at a large East Coast grocery chain and rounded up to the nearest US dollar.

based on patient' needs (per chart review) and modified according to questions and concerns expressed during the session. Examples included blood pressure and cholesterol-lowering strategies, weight loss approaches, medication adherence, exercise, stress management, sleep, and bone and liver health (Table).

Culinary and Medical Literacy

The latter half of the session included a cooking demonstration. Due to constraints of the conference room, only recipes that could be assembled simply were demonstrated. Some ingredients were prepared the night before (whole grains, roasted root vegetables), but most ingredients for the dishes were peeled, chopped, ground, and/or seasoned as part of the demonstration. Recipes were chosen by the physician leader and the chef (when available) based on a rotating curriculum with the goal of highlighting medical issues through cooking (Table). The curriculum topics included healthy fats, legumes, whole grains, fruits and vegetables, daily sodium intake, and how to identify hidden sodium, how to choose foods that help lower cholesterol levels, and weight loss strategies.

Sample recipes included quinoa herb salad, Thai spring rolls, white bean salad, smoothies, yogurt parfaits, Greek salad, and trail mix. Recipes were selected in an effort to demonstrate the ease and convenience with which healthy, delicious, and affordable meals and snacks could be made at home routinely. In addition to cooking demonstrations, patients participated in activities including sampling sweeteners, grading their intensity, and learning their effect(s) on the body; identifying and tasting different herbs and spices; and reading and interpreting food labels.

Other Follow-up Visit Tasks

Near the end of each of the visits, medications were adjusted, lab tests were ordered, and immuniza-

tions were administered as indicated. Limited physical examination beyond vital signs and observation was performed during the sessions with the exception of urgent issues.

Data Collection: Surveys

After each SMA, patients completed an anonymous survey about the session (available upon request). Questions were focused on patient satisfaction with the SMA format and content and included rating the SMA visit compared with a traditional one-on-one visit with the same physician, explaining what they liked and did not like about the visit, whether they would recommend SMAs to others, and whether they would pay out-of-pocket or similar copays in the future for such visits.

Oversight

This project was undertaken as a Quality Improvement Initiative in our practice and as such was not formally supervised by the Institutional Review Board per its policies.

RESULTS

Demographics

The patients invited to attend the SMA sessions were those of one physician. The cohort that attended included 70 patients (age range 45-80 y) who contributed a total of 156 patient-visits in 17 nutrition-targeted SMAs over 4 years (average 9 patients per session). Although there was some overlap, the exact patient mix differed in each session. Approximately 80% of the patients were women. The majority of the participants were white, with the remainder a mix of black, Asian, and European. Many had differing culinary backgrounds and customs, which gave us all an appreciation of cultural variability around food. All patients had at least one of the following diagnoses (most had

multiple diagnoses): hypertension, hyperlipidemia, diabetes, coronary artery disease, and obesity. Other diagnoses frequent to these patients included gastroesophageal reflux disease, sleep apnea, osteoarthritis, and fatty liver disease.

Feasibility of the SMA Setting for Culinary and Nutrition-focused Disease Prevention Education

The primary care physician, chef, and/or assistant team were able to successfully conduct SMAs in a primary care practice that included culinary and nutrition-based discussions and activities to help educate patients about metabolic disease prevention and teach them skills to help improve the quality of their meals and snacks. Presence of a standard conference room was sufficient; no special renovations or expensive cooking equipment were needed. No additional ancillary staff (eg, front desk staff and medical assistants) needed to be scheduled for the SMAs beyond what is needed day-to-day in the clinic. Patients readily engaged in health and food-related discussions. They often shared sensitive information with others—including personal stories about weight loss and regain and examples of stress eating—and even their own cooking tips.

Patient Satisfaction

Session participants generally liked the SMAs as much as the traditional one-on-one visits, and most would consider alternating traditional one-on-one visits with SMA visits. Most patients would recommend SMAs to others and would return to another SMA. About half of the patients responded they would pay out of pocket or pay a higher copay to attend this type of SMA. Responses on the surveys frequently included comments such as “it inspired me to try harder, reminding me to take care of myself”; “it’s good to know others are trying to tackle the same problems”; “others’ questions reminded me of questions I may have forgotten”; “very helpful—I hope more medical centers follow this example.” Participants also stated that they enjoyed the cooking demonstration, participation in preparation of the food, and subsequent tasting.

Billing and Time Costs

The majority of patient visits were billed as low complexity, established level 3, based on the unique diagnoses and medical issues addressed with each patient. One or fewer patients per session had a medical issue needing private consultation and/or examination. When necessary, this was conducted after the SMA, and these visits were billed at moderate complexity, established level 4. For the physician, the total time needed to prepare for a 90-minute session and post-visit charting was comparable to the traditional 3.5-hour long session for an equivalent number of patients, with similar billing revenue. Medical students received course credit for their time; other assistants donated their time. The nominal food costs (max \$30 per session) were born by the physician (see Table). Financially,

the practice and the physician broke even with revenue generated from these SMA sessions as compared with the traditional one-on-one visits.

Laboratory Data

Due to the limited number and self-selection of patients, data on clinical outcomes such as hemoglobin A_{1c}, body mass index, or blood pressure changes were not tracked.

DISCUSSION

As a majority of Americans are now overweight or obese, there is an urgent need to address weight and poor nutrition–related disorders in a systematic fashion. Guidelines on obesity in clinical practice were recently released and include healthcare providers’ pivotal role in helping patients to adopt healthy lifestyles and manage their weight.¹⁴ Group visits including various types of SMAs are gaining momentum. However, despite increased interest in SMAs, there is a gap in our knowledge of how to effectively implement the SMA concept in clinical practice and to adapt SMAs to focus on nutrition and self-care in general.

There are no physician-led SMAs described in the literature that focus on nutrition and culinary literacy. This pilot feasibility project highlights a novel type of SMA that addresses the paucity of culinary and nutrition literacy among patients and demonstrates that teaching cooking in primary care is feasible in a resource-limited setting. Many patients (and physicians) are intimidated by the concept of cooking and feel that without a fancy kitchen facility, it would be too difficult to cook or learn about cooking. The type of nutrition and culinary SMA presented here may dispel that myth. In addition, the limitations of resources is a benefit in some ways—many people have minimal to no culinary skills or may have limited means and the relative handicap on the physician of having no specialized kitchen equipment and focusing on the basics brings the teaching to a level that is approachable for patients without any prior nutrition or cooking background.

A limitation of this study is that there are no quantitative outcome data on objective measures such as weight, blood pressure, cholesterol, and hemoglobin A_{1c} levels. The reason that these markers were not followed was that patients self-selected to participate and the sample size was small, which limited the power and generalizability. Most importantly, the primary reason that this project was undertaken was to test feasibility of conducting SMAs that use culinary and nutrition literacy to teach prevention techniques to patients with chronic lifestyle-related diseases in a standard primary care practice setting. The qualitative survey data collected on patient satisfaction with this visit format was overwhelmingly positive. Satisfaction was also manifested by patients returning to subsequent SMA sessions.

In the model presented, the nominal food costs

were covered by the physician. Alternatives to physician funding are highly practice and location dependent but could include using practice improvement funds or local, county, state or federal funds allocated for programs to combat obesity or other chronic diseases. Additionally, some of the assistants donated their time. If paid staff served in this role, the addition of 90 minutes of their time would need to be factored into the cost. However, many variations on this model could be revenue generating and further behaviorally impactful.

It is not often that patients dedicate 90 minutes to address their health in a medical setting. A strength of this type of SMA is that it allows patients time to focus on important issues that are often sidetracked during fast-paced modern American life and the usual 20-minute follow-up appointment format. Participating in creating simple, healthy, delicious dishes within a few minutes with the most basic cooking tools and no kitchen is incentive for patients to try preparing these meals at home for themselves and their family. At later traditional office visits, multiple patients reported that they are now less afraid in the kitchen and have successfully incorporated various dishes demonstrated at the SMAs into their family repertoire.

In our rapidly changing healthcare system, SMAs constitute a promising option to improve the quality of chronic care management. The methods described here show that this form of culinary and nutrition-focused SMA is feasible and financially viable for a practice. The only requirements are that a physician with basic cooking skills be interested in conducting the visits and that there is at least 1 standard conference room available in which to conduct the visit. Alternatively, if a practice has a dietician or other staff member with basic cooking skills, they could serve as the assistant and do the cooking demonstration while the physician focused on prevention and disease education. While not required, we believe the experience would be enhanced if there is access to an actual kitchen with running water and a heating source; this would allow for a more advanced and hands-on culinary education. As more practices are transitioning to patient-centered medical homes, they may want to consider designing practices to incorporate these features.

Results from this quality improvement pilot feasibility project are encouraging; learning about, preparing, and sharing food is a way for people to positively engage in self-care education. Culinary and nutrition-focused SMAs are also a feasible and promising adjunct to current primary care practice. However, further studies are needed to fully elucidate the impact these SMAs can have on behavior and health outcomes, costs of care, and quality of life. Our next steps include (1) replicating this model in other practice settings, (2) creating a revised/enhanced model with access to a demonstration kitchen in an effort to optimize protocols, (3) conducting a prospective observational study with outcome tracking, and finally (4) conducting a randomized-controlled trial.

Acknowledgments

The authors would like to acknowledge Karen Carlson, Stephanie Eisenstadt, and Kathy Ulman for help in setting up shared medical appointments; Ronald Dixon and Richard Perrotti for office support; and Rani Polak for culinary demonstrations.

REFERENCES

- Centers for Disease Control and Prevention. Chronic diseases—the power to prevent, the call to control: at a glance 2009. <http://www.cdc.gov/chronicdisease/resources/publications/aag/chronic.htm> Accessed October 29, 2014.
- Hartmann C, Dohle S, Siegrist M. Importance of cooking skills for balanced food choices. *Appetite*. 2013;65:125-31.
- Caraher M, Dixon P, Lang T, Carr-Hill R. The state of cooking in England: the relationship of cooking skills to food choice. *Br Food J*. 1999;101(8):590-609.
- Wynn K, Trudeau JD, Taunton K, Gowans M, Scott I. Nutrition in primary care: current practices, attitudes, and barriers. *Can Fam Physician*. 2010;56(3):e109-16.
- Bleich SN, Bennett WL, Gudzone KA, Cooper LA. National survey of US primary care physicians' perspectives about causes of obesity and solutions to improve care. *BMJ Open*. 2012;2(6):e001871.
- Noffsinger EB. Running group visits in your practice. New York: NY Springer; 2009.
- Guirguis AB, Lugovich J, Jay J, et al. Improving diabetes control using shared medical appointments. *Am J Med*. 2013;126(12):1043-4.
- Egger G, Binns A, Cole MA, et al. Shared medical appointments—an adjunct for chronic disease management in Australia? *Aust Fam Physician*. 2014;43(3):151-4.
- Cole RE, Boyer KM, Spanbauer SM, Sprague D, Bingham M. Effectiveness of prediabetes nutrition shared medical appointments: prevention of diabetes. 2013;39(3):344-53.
- Critchley CR, Hardie EA, Moore SM. Examining the psychological pathways to behavior change in a group-based lifestyle program to prevent type 2 diabetes. *Diabetes Care*. 2012;35(4):699-705.
- Masley S, Phillips S, Copeland JR. Group office visits change dietary habits of patients with CAD—the Dietary Intervention and Evaluation Trial (DIET). *J Fam Pract*. 2001;50(3):235-9.
- Palaniappan LP, Muzaffar AL, MD, Wang EJ. Shared medical appointments: promoting weight loss in a clinical setting. *J Am Board Fam Med*. 2011;24:326-8.
- Eisenberg DM, Miller MA, McManus K, Burgess J, Bernstein AM. Enhancing medical education to address obesity: "See one. Taste one. Cook one. Teach one." *JAMA Intern Med*. 2013;173(6):470-2.
- Jensen MD, Ryan DH, Apovian CM, et al. 2013 AHA/ACC/TOS guideline for management of overweight and obesity in adults: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines and The Obesity Society. *Circulation*. November 12, 2013. <http://circ.ahajournals.org/content/early/2013/11/11/01.cir.000437739.71477.ee>. Accessed September 25, 2015.

To view or download
the full-text article, visit:
www.gahmj.com/doi/full/10.7453/gahmj.2015.060