




Culinary medicine: experience report of an elective course for Medical students

Medicina culinária: relato de experiência de uma disciplina eletiva para alunos de Medicina

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ABSTRACT

Introduction: The global increase in unhealthy eating is closely linked to a downward trend in food preparation at home. There are studies showing a positive association between increased cooking skills and reduced cardiovascular risk. In addition, the little time devoted to nutrition education in the curriculum of medical schools contrasts with the high mortality rates attributable to poor diet. Culinary Medicine (CM) is an emerging field of Medicine, which brings a new educational approach, based on scientific evidence, whose objective is to teach the power that food has on health and to improve the eating behaviors of healthcare professionals and, consequently, of their patients.

Experience report: An elective discipline of CM was developed at Unifesp, which resulted in a descriptive study with a qualitative approach, carried out with 18 students who participated in weekly meetings during 5 weeks of training. The meetings were carried out 100% online, through the Zoom platform. Data from this study were collected through portfolios, in which each student described their experience with the course. The analysis of the material was carried out through thematic analysis. A questionnaire was applied to evaluate the Culinary Skills Index developed and validated according to self-efficacy in the performance of culinary skills and having as theoretical reference the Dietary Guideline for the Brazilian Population.

Discussion: There are numerous challenges such as the physicians' awareness about the importance of this approach, which often seems to be more practical than technical, and the subjectivity of the topic on changing the behavior of physicians and patients. However, the results of this study show that the students who took the elective course believe that this curricular reformulation is extremely important and urgent.

Conclusion: There is a worldwide transformation trend in the curriculum of healthcare professionals, and it is believed that this process can be initiated in medical schools through elective courses in Culinary Medicine, such as the one implemented at Unifesp.

Keywords: Healthy Eating; Lifestyle; Cooking; Medical Students; Educational Activities.

RESUMO

Introdução: O aumento global da alimentação não saudável está intimamente ligado a uma tendência de redução na preparação da comida feita em casa. Já existem estudos que mostram uma associação positiva entre o aumento das habilidades culinárias e a redução de risco cardiovascular. Somado a isso, o baixo tempo destinado à educação nutricional no currículo das faculdades de Medicina contrasta com as altas taxas de mortalidade atribuíveis à má alimentação. A medicina culinária (MC) é um campo emergente da medicina, que traz uma nova abordagem educacional, baseada em evidências científicas, cujo objetivo é ensinar o poder que a comida tem sobre a saúde e melhorar os comportamentos alimentares dos profissionais de saúde e, consequentemente, de seus pacientes.

Relato da experiência: Desenvolveu-se uma disciplina eletiva de MC na Escola Paulista de Medicina da Universidade Federal de São Paulo (Unifesp) que resultou em um relato de experiência, com abordagem qualitativa, realizado com 18 alunos que participaram de encontros semanais durante cinco semanas de forma 100% online, por meio da plataforma Zoom. Os dados deste estudo foram coletados por meio de portfólios, em que cada estudante descreveu sua experiência com o curso. A avaliação do material foi feita por meio de análise temática. Aplicou-se um questionário que avaliou o Índice de Habilidades Culinárias, desenvolvido e validado segundo a autoeficácia no desempenho das habilidades culinárias e tendo como referencial teórico o Guia alimentar para a população brasileira.

Discussão: Existem inúmeros desafios, como a conscientização dos médicos sobre a importância desse assunto, que muitas vezes parece ser mais prático do que técnico, e a subjetividade do tema sobre mudança de comportamento de médicos e pacientes. No entanto, os resultados deste estudo evidenciam que os alunos que realizaram a eletiva acreditam que essa reformulação curricular é extremamente importante e urgente.

Conclusão: Observa-se uma tendência mundial de transformação da grade curricular dos profissionais da saúde, e acredita-se que esse processo pode ser iniciado nas faculdades de Medicina por meio de disciplinas eletivas de MC como a que foi implementada na Escola Paulista de Medicina da Unifesp.

Palavras-chave: Alimentação Saudável; Estilo de Vida; Culinária; Estudantes de Medicina; Educação Alimentar e Nutricional.

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Chief Editor: Rosiane Viana Zuza Diniz. | Associate Editor: Cristiane Barelli.

Received on 11/02/23; Accepted on 04/30/24. | Evaluated by double blind review process.

INTRODUCTION

The increase in unhealthy eating is closely linked to a trend that has been manifesting over the last 40 years; there has been a 23% reduction in food preparation at home and a 42% increase in eating outside of it¹. It is known that preparing homemade meals is associated with a healthier diet and a greater intake of fruits and vegetables, as well as a reduction in calorie consumption¹. Also, there is a positive association between increased culinary skills (CS) and reduced cardiovascular risk².

In Brazil, excess weight has increased by more than 20% in the last 10 years, that is, from 50.8 in 2013 to 61.4% in 2023. In parallel, there has been an 11% reduction in the consumption of fruits and vegetables. Beans, such a classic food in our culture, had their consumption reduced during this period, which may be related to this trend towards a reduction in the preparation of home-cooked food^{3,4}.

Added to this, the time allocated to nutritional education in the medical school curriculum contrasts with the high mortality rates attributable to a poor diet. Therefore, many specialists argue that training future doctors using a practical approach called "culinary medicine (CM)" would be a good method to mitigate the costs associated with chronic diseases resulting from poor nutrition⁵.

CM is an emerging field of medicine that brings a new educational approach, based on scientific evidence, which combines the art of cooking and medical science. Its objective is to teach the power that food has over health and illness and to improve the eating behaviors of healthcare professionals and, consequently, of their patients. It also aims to help doctors communicate more effectively on the topic, teaching them the skills needed to prepare healthy meals and helping them overcome common barriers to healthy eating. The focus is on the language of the kitchen, on CS and communication techniques and health coaching^{6,7}.

A recent review described common elements of success in CM programs in medical schools. These programs have shown to provide students with the experience needed to translate nutritional knowledge learned in typical medical school curricula into practical advice. The culinary experiences allow them to provide their patients with individualized nutritional guidance that is easier to translate into viable changes than the generic suggestions typical of healthy eating. CM training also provides an environment for students to practice motivational interviewing techniques, a skill that may not be formally addressed in medical curricula⁸.

Thus, there is currently strong student support reported in several scientific studies around the world for the creation of elective disciplines in clinical nutrition with CM sessions

to fill the gap, both in professional training and in improving confidence regarding nutritional counseling. Medical students trained in CM report a higher intake of fruits and vegetables, as well as better attitudes and skills in nutrition⁶.

In CM, it is believed that lifestyle changes should be initiated by the doctor, before advising the patient, as the patient's behavior is a reflection of the doctor's behavior⁹. In this process, the physician identifies their own barriers to not cooking, such as lack of confidence, security, skills, and time. This approach begins in medical schools, teaching students how to cook, so they can educate the patient about the importance of healthy cooking¹⁰.

Additionally, it was observed that CM training at a Harvard School of Public Health conference increased the participants' self-reported confidence in counseling patients on nutrition-related issues compared to physicians who did not participate in the training. These professionals have also increased the frequency of cooking, improved the capacity to assess a patient's nutritional status, and successfully counsel overweight patients on nutritional and lifestyle habits¹¹.

It is believed that a healthy and effective discussion about diet changes the dynamics of a medical consultation and opens a dialogue, making doctors and patients collaborators in creating a path to well-being. But greater educational efforts are needed to translate the science of nutrition into practical strategies in which healthy, accessible and easily prepared foods become predominant elements of the dietary pattern of doctors and their respective patients¹². And it was with the purpose of teaching medical students the basis of CM that an elective course was created on this subject at Escola Paulista de Medicina at Universidade Federal de São Paulo (Unifesp).

EXPERIENCE REPORT

This is an experience report with a qualitative approach, carried out with medical students from Escola Paulista de Medicina at Universidade Federal de São Paulo (Unifesp), who participated in the CM elective course for 5 weeks. The purpose of this course program was to enable medical students to expand their nutritional, culinary and lifestyle knowledge so they could translate this information to themselves, the rest of the medical community and their future patients, thus enabling the implementation of health improvements. The discipline offered knowledge about food, lifestyle changes, nutrition and its relationship with diseases and doctor-patient communication, enabling them to provide more effective care to patients with obesity and other chronic diseases related to diet.

This course was carried out 100% online, through the Zoom platform, with weekly meetings for five weeks. This is

a theoretical-practical course, with 12 hours of theoretical classes and six hours of practical classes. The maximum number of participants accepted was 18 students so that it was possible to provide personalized support in the remote hands-on practice, on the last day of the course. Due to the Covid-19 pandemic, all classes were held online. In all theoretical classes, explanations were made, with classes being taught in a traditional format, followed by dynamics with problem-based learning and/or role play to stimulate the students' interaction and active participation.

The project was submitted to and approved by the Research Ethics Committee (CEP) of Escola Paulista de Medicina, Universidade Federal de São Paulo (Unifesp), whose Certificate of Presentation for Ethical Assessment (CAAE) number is 70706723.4.0000.5505. The Free and Informed Consent Form (TCLE) was prepared according to the model provided by the CEP of the same institution. Students who agreed to participate by signing the informed consent form were included in the sample.

The elective discipline schedule was based on the following topics and classes:

Week 1:

Theoretical class with the title "What is CM and how important it is for the doctor and their patients?". In the first part of the class, the Pillars of Lifestyle Medicine were discussed and how this area can be a great ally in patient treatment, in addition to the topic of happiness, practical strategies on how to increase well-being and manage stress. Finally, surveys and questionnaires were completed about each student's self-care and lifestyle to encourage reflection on their own health and aspects that could be improved.

Week 2:

Theoretical class entitled "The basics that every doctor should know about healthy eating": concepts about healthy eating were introduced in this class. The students learned the role of CM in the treatment of obesity and the importance of seeing it as a chronic and difficult-to-treat disease. Subsequently, a theoretical class was presented whose topic was "Dietary Guidelines for the Brazilian Population¹³": the concepts of NOVA classification of foods according to the degree of processing, were covered. The last topic discussed was nutritional labeling, using a practical approach, through the use of images of real products and reading of nutritional tables to guide students on how to correctly read the labels.

Week 3:

It included a theoretical class entitled "Motivational Interviewing", which is a technique with a semi-structured,

directive, client-centered approach that aims to evoke motivation to make behavioral changes. The student learned how to approach the client more effectively according to the motivational stage they are in, making behavior changes more feasible. Then, in the theoretical class entitled: "How to discuss healthy eating with the patient", topics on nutritional terrorism, a reductionist view of food, eating behavior, different types of hunger, eating patterns and concepts of mindful eating were covered.

In the practical part, a group dynamic was carried out with the topic "SMART Goals", in which each student created a SMART goal for themselves to improve some aspect of their lifestyle and thus develop this skill to be able to help their patients in the future. After this dynamic, a practical simulation of an interview was carried out with a patient with obesity who was resistant to changing their current lifestyle. The objective of the dynamic was to show the student an example of the applicability of Motivational Interviewing in the consultation.

Week 4:

The theoretical class started with the history and academic expansion of CM around the world. Subsequently, the class "Culinary techniques that everyone should know" was taught: students learned about the cuts most often used in the kitchen, basic utensils, planning, organization and cost control strategies so that it was possible to have practical and healthy homemade meals. The main culinary barriers were addressed: time, planning, organization, cost and technical skills. The SMART goals were reviewed in the context of menu planning and time management. Another addressed aspect was advice to the population treated at the Unified Health System (SUS): strategies for reducing costs, such as purchase planning, reusing ingredients and preparations in large quantities. This class also discussed current and important topics in this field, such as CM for food insecure populations and the issue of sustainability, demonstrating that there are many issues to be discussed in the public and private spheres.

Week 5:

Practical class entitled "Cooking with Doctors in the kitchen": it started with a "hands-on" activity with the preparation of two simple and easy recipes, encouraging students to prepare a breakfast with few ingredients, in a practice together with the chefs. In the second part of the class, the chefs demonstrated the preparation of recipes by putting into practice several theoretical concepts covered in class 4.

The data for this study were collected through portfolios, in which each student described their experience with the course. 18 students were interviewed, predominantly attending

the second year of medical school, aged between 21 and 30 years old. To create the portfolio, each student was asked to answer the following open questions about their perception of the course:

1. What were your theoretical learnings from the course?
2. How did the course change your daily habits?
3. What were the positive and negative points of the course? What changes would you propose?

The material was evaluated using thematic analysis. Moreover, a questionnaire was applied that evaluated the Culinary Skills Index (CSI)¹⁴, developed and validated according to self-efficacy in the performance of CS and using the Dietary Guidelines for the Brazilian Population¹³ as the theoretical reference. The CSI measures people's level of confidence in the performance of ten CS considered as facilitators in the implementation of the guide recommendations.

It was reported in many portfolios that the search for the elective discipline was largely due to curiosity in understanding the relationship between cooking and medicine, as this would be an area that was historically only studied by nutrition students. The students reported that during classes, by learning a little more about the science of human behavior, the barriers to lifestyle change and by reflecting on their own lifestyle, they felt more motivated to improve their own health. They also point out the class on reading labels as an area of great learning. Moreover, they reported great learning and motivation to go to the kitchen.

However, there was a limitation caused by the pandemic due to the fact that classes were online and this was the only negative criticism of the elective discipline.

DISCUSSION

The treatment of chronic diseases is quite complex, involving not only biological questions, but also behavioral and lifestyle changes. Therefore, doctors need to be well trained in doctor-patient communication and behavioral science to increase adherence to medications and change patients' lifestyles in the long term, aiming to achieve better health outcomes. In this sense, there is a global trend towards the transformation of the curriculum for health professional training, aimed at expanding learning to change lifestyle, which can be started in medical schools through CM elective disciplines.

The CM elective discipline implemented at Escola Paulista de Medicina at Universidade Federal de São Paulo (Unifesp) was based on medical literature, directed study, application exercises, clinical skills and practical sessions according to the curriculum described in previously published studies^{5,6,7}. And it can be considered an important step in the development of

this new area of knowledge here in Brazil, as it is a pioneering elective discipline on the subject.

CM started to be developed in universities very recently, but it is already possible to observe its growing relevance and impact, since the first class for medical students in 2003, at the State University of New York, going to the creation of conferences bringing together culinary schools and medical schools such as, in 2007 with Healthy Kitchens, Healthy Lives, to the already consolidated CM curriculum at the Goldring Center, currently applied in more than 50 medical schools in the United States^{15,16}.

In Brazil, the teaching of CM is quite incipient. There are many challenges, such as raising doctors' awareness of the importance of this subject, which often seems to be more practical than technical, and the subjectivity of the topic of changing the behavior of doctors and patients. However, the results of this study show that students who took the elective discipline believe this curricular reformulation is extremely important and urgent. The involvement of a multidisciplinary team provided a broader view of the doctor-patient treatment, with the possible inclusion of nutrition students in the future to discuss the structuring of the discipline, innovating the approach that nutrition can contribute to medical education, considering that the elective discipline students recognize that there is a large gap in medical learning about nutrition, cooking, self-care and motivational interviewing. This creates the students' motivation to address this issue, which generates significant and profound changes in their training and professional performance. Furthermore, the students' statements show that improving their patient's health becomes a great source of motivation to learn more about this subject and improve their own health.

The CM programs seem to be a viable substitute for traditional nutritional education and may be more effective than the conventional methods used to date, aimed to improve students' competence regarding nutritional counseling¹⁷. A study with medical students who participated in a two-week CM elective discipline showed that the students highly valued the practical and culinary components of the course, indicating that a brief CM curriculum can effectively improve the students' knowledge and self-efficacy on nutritional counseling and that students prefer practical and applied learning when learning about topics such as nutrition¹⁸.

Just like in the rest of the world, CM has also been expanding in Brazil. In 2018, the "Doctors in the Kitchen" project was founded, a multidisciplinary group consisting of doctors, nutritionists, chefs and psychologists, with the aim of spreading knowledge about CM among physicians. A theoretical-practical course was created to provide necessary

tools for the development of CS, inspiring them to have a healthy lifestyle and improving their general quality of life in the long term. To date, there have been 12 editions of the course for around 160 doctors. This same group published, in 2019, the first Brazilian book on CM and in 2022, the book entitled "Lifestyle Medicine" with more comprehensive and scientific concepts about CM, allowing the dissemination of knowledge not only to health professionals, but also to the general public^{19,20}.

It is known that many doctors deal with burnout by eating junk food or binge eating²¹. Thus, when it comes to healthy eating, the doctor is often also a patient and CM can encourage them to make positive behavioral changes for their own health, which will certainly reflect on the health of their patients. This has been demonstrated by the speeches of several students, who noticed a positive impact of the elective discipline on their own eating habits, with a reduction in the consumption of ultraprocessed foods and an increase in the consumption of fresh and home-prepared foods. The students also reported great learning and motivation to go into the kitchen and we know that what we eat affects our health and well-being^{1,22}. To deal with chronic diseases, it is necessary to understand human behavior, doctor-patient relationships and communication. Nutrition and lifestyle behavioral change need to be technical competencies of all doctors, of all specialties and of all health professionals who work with patients who have or are at risk of having diet-related chronic diseases⁹ and, in this context, the CM classes have a lot to offer.

CONCLUSIONS

The period of starting the university is related to negative changes in eating habits and weight gain among young people. Thus, the university campus can represent an important environment for promoting health through food and nutrition interventions. The students' experience with CM made them realize the several aspects of this specialty performance and its implication in the broader concept of health, completed with the development of the necessary skills to provide this type of care, which was only made possible during the practical activities, when the importance of multidisciplinary in this activity was also perceived.

Theoretical and practical teaching of CM should be increasingly encouraged in the curricula of undergraduate courses in the health area, and research aimed at improving this training should be encouraged. Only thus can it be ensured that all doctors include effective questions about healthy eating in their anamnesis, use the language of food when talking about nutrition, communicate the value of homemade food during consultations and prescribe culinary

resources. And, first of all, they learn to cook and take care of their own health, so they can better care for the health of their patients.

AUTHOR'S CONTRIBUTIONS

Paula Pires Nascimento: contributed to the writing of the manuscript and data interpretation. Juliana Aiko Watanabe: contributed to the writing of the manuscript, data interpretation and approval of the final version. Marina de Andrade Maia Galvão Bueno: contributed to the writing of the manuscript, data analysis and critical review. Adriana Katekawa: contributed to the writing of the manuscript, data analysis and approval of the final version. Marcela Rassi da Cruz: contributed to the conception and design of the study, writing of the manuscript and data analysis. Tassiane Alvarenga: contributed to the conception and design of the study and writing of the manuscript. Ghina Katharine Eugênia Dourado Meira Machado: contributed to the writing of the manuscript. Samira Yarak: contributed to the conception and design of the study, writing of the manuscript and critical review.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

SOURCES OF FUNDING

The authors declare no sources of funding.

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