

An Apple A Day Keeps The Doctor Away: A Look at Medical Student Nutrition Education

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Background

According to the CDC, the 2017-18 prevalence of obesity in the United States was 42.4% [4]. Adequate nutritional counseling by physicians not only helps patients with obesity, but also plays a crucial role in developing treatment strategies for patients with cardiovascular disease, diabetes, kidney disease, cancer, malnutrition and many other conditions [2]. In order to counsel patients on the importance of their diet, physicians must be knowledgeable in nutrition.

Most nutrition education occurs during the first two years of medical school [2]. In the 1985 Report of the National Research Council's Committee on Nutrition in Medical Education, it was recommended that medical students have 25-30 hours of nutrition education [1]. In a 2008 study of the 121 responding medical schools, 73% reported that they do not meet the 25-hour nutrition instruction minimum recommendation and provide an average of 19.0 (±13.7) hours of nutrition education [1]. Medical schools provide nutrition education to their students by either integrating nutrition into other subjects, such as biochemistry and physiology, or by providing a designated nutrition course. Only 18% of the 121 responding medical schools acknowledged that they had a designated nutrition course [1]. Since 2000, the amount of medical schools with a required nutrition course has declined [1].

These studies exemplify the lack of nutrition education provided to medical students. This lack of education results in medical students, residents, and physicians not feeling qualified to discuss nutrition with their patients and ultimately limits patient care and patient wellbeing.

Introduction

Researchers at Tulane University School of Medicine developed the Goldring Center for Culinary Medicine (GCCM) to address the inadequate and ineffective nutrition education in medical schools. They did this by creating a course that included hands-on cooking classes combined with online education modules to create a class titled, 'Health meets Food'. A study of over 3,000 medical students demonstrated that this hands-on cooking and nutrition education improves medical trainees' competencies in counseling patients on nutrition, while improving students' own diets (5). The GCCM curriculum consists of 28 hours of instruction over 8 classes, which includes 0.5-hour pre-class online lecture videos, 1.5 hours of hands-on cooking, and 0.75-hour post-class problem-based learning (PBL) sessions as trainees eat their prepared meals.

Third-year medical students rotating at Arnot Ogden Medical Center (AOMC) were offered the unique opportunity to complete either the full GCCM curriculum (Health meets Food) or the online portion only (Nutrition Teaching Day). All participating students had nutrition incorporated curriculum during their pre-clinical education representing less than 10 hours of nutrition education. Certain students had an additional nutrition dedicated course providing 11 additional hours of nutrition education (Group A).

The goal of our research is to evaluate the effectiveness of a designated nutrition course with nutrition incorporation curriculum versus nutrition incorporation curriculum only. Furthermore, we sought to evaluate the nutritional knowledge after completion of the GCCM curriculum which included at least 8 modules (6 hours) of online education.

Objective

This ongoing 2-year prospective cohort study compared the effectiveness of integrated nutrition curriculum with a dedicated nutrition course (Group A) to integrated nutrition curriculum alone (Group B). Third year medical students' nutrition knowledge was evaluated before and after completing all or a portion of the GCCM curriculum.

Average Nutritional Knowledge Assessment Scores

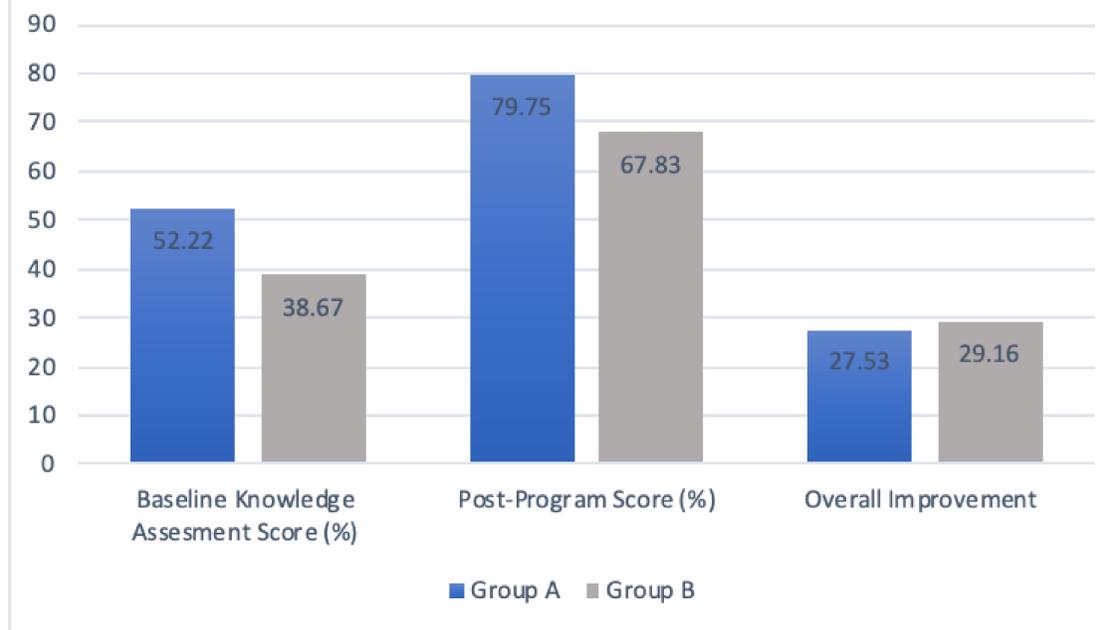


Figure 1. Average Baseline Knowledge Assessment scores and post-program scores of students who completed the Health Meets Food class or Nutrition Teaching Day. Overall improvement calculated by the difference between average post-program and pre-program scores.

Methods

The GCCM curriculum was implemented for third-year medical students rotating at Arnot Ogden Medical Center (AOMC) from 2018-2020. Upon voluntary enrollment in either the full Health meets Food course or required enrollment in the Nutrition Teaching Day course, the 26 students from Group A and the 49 students from Group B completed the Baseline Knowledge Assessment to assess baseline nutrition knowledge (Figure 1). The Baseline Knowledge Assessment was composed of all 115 module quiz questions.

Students enrolled in Health meets Food completed 8 modules of hands-on cooking classes, problem-based learning sessions, and the online education curriculum. The 28 hours of education was broken into 8 individual weekly sessions. Each week, module videos were viewed before attending the respective hands-on cooking portion. Cooking classes were then completed as a group with subsequent discussion of the module's respective problem-based learning. Students completed the module quiz before or after the cooking course. Each quiz assessed their nutritional knowledge of the material covered in each individual module.

Students enrolled in the Nutrition Education Day program completed the GCCM online only education curriculum which included the lecture videos, articles, and study guides. This totaled 8 hours of instruction over 2 days.

Results

Data was analyzed using a two-sample t-test assuming equal variances.

The average baseline assessment score (Figure 1) for Group A was 52.22% correct and 38.76% correct in Group B. The difference between these two averages was statistically significant, with a p-value of <0.001.

The average post-program score, calculated by averaging the scores from modules 1 through 8 (Figure 2), was 79.75% correct for Group A and 67.83% correct for Group B. The difference between these averages was statistically significant, with a p-value of 0.002.

Average Score (%) By Module

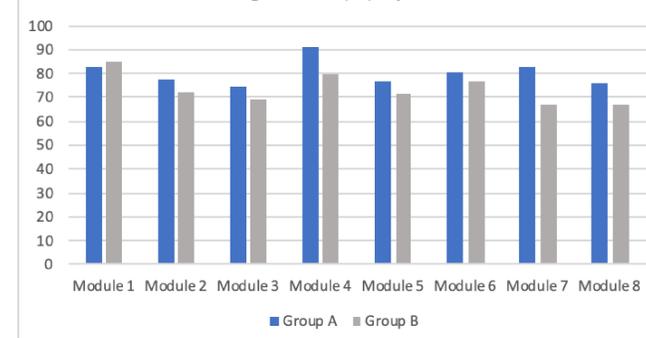


Figure 2. Average module scores by group.

Further Discussion

This study was limited by a small sample size, noncompliance completing online modules, short-term follow up, and error in post score data collection. Only first attempts were included in the data even though some students had taken the quizzes multiple times. Lastly, research was completed by students who also participated in the study.

Future studies should evaluate whether nutritional education is better in the preclinical versus clinical years, if a dedicated nutrition course is superior to integrated nutrition and whether the way in which nutrition is integrated into the curriculum improves baseline knowledge assignment and post program score. Additionally, statistical adjustment based on student's past exposures and stricter inclusion criteria should be considered.

Conclusions

This prospective cohort pilot study found that students who had nutrition incorporated curriculum and a dedicated nutrition course had greater nutritional knowledge and retained more nutritional knowledge with repeat exposure than those who had nutrition incorporated curriculum only.

Through this study, it is evident that there is a gap in medical education that needs to be addressed. Both physicians and patients are affected by the lack of nutrition in medical education. As science continues to advance and the knowledge base remains unlimited, it is imperative to teach medical students nutrition, not just the pathological outcomes of a poor diet. By incorporating an adequate amount of nutrition education into the medical school curriculum, students will have a greater nutritional knowledge and retain more information on repeat exposure, allowing them to be more prepared in clinical practice.

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