TEACHERS' TOPICS

The Impact of an Immersive Elective on Learners' Understanding of Lifestyle Medicine and Its Role in Patients' Lives

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Objective. To design an immersive, active learning, lifestyle medicine (LM) elective and evaluate its impact on a pharmacy learners' ability to understand the challenges of implementing lifestyle changes.
Design. A 3-credit elective was developed that incorporated goal setting and immersion into the realm of LM as experienced by both the patient and the practitioner. Learners were assessed via a survey instrument, formal assignments, reflections, and the Presidential Fitness Challenge.
Assessment. Learners reported that their ability to initiate LM as a primary intervention within a care plan significantly increased after taking this course. They also improved their overall health.
Conclusion. By identifying and implementing self-identified lifestyle modifications, learners increased confidence in their abilities to produce evidence-based outcomes for patients. Learners were able to understand the challenges of trying to change their daily habits as they undertook their own personal goals.

Keywords: active learning, lifestyle modifications, elective, lifestyle medicine

INTRODUCTION

Pharmacist involvement in the health and wellness of patients continues to fall short of its full potential in the United States.[1] In 2005, the CDC published results from an analysis that compared the leading causes of death to the actual causes of death in the United States. The leading causes of death were heart disease, cancer, stroke, chronic respiratory disease, and unintentional injury; these can be attributed to poor lifestyle choices, tobacco use, poor diet, physical inactivity, and excessive alcohol consumption. They can be considered preventable if effective interventions are implemented in a timely fashion.[2-4] The majority of actual causes of death such as poor diet and physical inactivity are modifiable lifestyle related behaviors. [3,4] The enormous potential effects of health behavior change on mortality, morbidity, and health care costs provide ample motivation for the concept of lifestyle medicine (LM), namely eliminating tobacco use, improving diet, increasing physical activity, and moderating alcohol intake.[2,3] Health behaviors can influence the future health and the well being of patients, especially those with chronic conditions.[2] Eighteen percent of patients with heart disease continue to smoke, which is only slightly better than the general population's smoking rate of 19.1%.[2] Obesity is an accelerator of chronic diseases. More than one-third of adults and 17% of children in the United States are obese, with the prevalence remaining stable between 2003-2004 and 2009-2010.[5] Pharmacists, as the most accessible health care provider, are ideally positioned to educate patients and move the profession forward while providing evidence-based outcomes. As roles transition in the near future, pharmacists need to step out of their dispensary role and embrace working as care providers.

Health and wellness is a core competency of the 2013 CAPE Educational Outcomes. Designing "prevention, intervention, and educational strategies for individuals and communities to manage chronic disease and improve health and wellness" are key components of the outcomes and also of our emerging role as care providers.[6] Approximately 70% of Americans have at least one chronic medical condition and only 7.5% of American adults between the ages 25 and 74 are considered to have a low risk factor burden for cardiovascular disease.[7,8] The INTERHEART and INTERSTROKE studies predicted that 90% of myocardial infarctions and strokes are caused by 10 modifiable and lifestyle related risk factors.[9-12] Lifestyle medicine is an emerging field of health care that may best be defined by the American College of Lifestyle Medicine (ACLM) as the "use of lifestyle interventions in the treatment and management of disease. Such interventions include diet, exercise, stress management, smoking cessation, and a variety of other non-drug modalities." [7]

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Educating our future care providers is an essential component of medical and pharmaceutical education. An interest in establishing lifestyle medicine as part of patient-centered care and thus motivating patients to manage their health has increased over the last decade.[13] Physicians have cited their own inadequate confidence and a lack of knowledge and skill as major barriers to counseling patients about lifestyle interventions.[2] However, when LM is incorporated into practices patient outcomes improve.[2] Few pharmacy schools offer courses that address multiple lifestyle modification-related topics as an integrated approach in curricula.[5] Because lifestyle behaviors are the cause of so many preventable chronic diseases, the economic burden of which is great, health care practitioners can help patients maximize healthy behaviors through education, motivational interviewing, and counseling.[3] The Accreditation Council for Pharmacy Education's first standard recommends advancing the standards of pharmacy education in the United States. Applying pharmacist expertise to lifestyle interventions embodies this standard and could be a robust part of pharmacy education.[14] Pharmacists have the knowledge and accessibility to make recommendations and create care plans for patients to help reverse the decrease in adherence to healthy lifestyle behaviors. Moreover, the same number of adults and children are obese today as they were in 2003-2004. Smoking rates have not changed either, and the amount of people eating five or more fruits and vegetables per day has decreased from 42% to 26%.[15,16] The objective of this paper is to describe the design of an immersive, active learning, lifestyle medicine elective and evaluate its impact on a pharmacy learners' ability to understand the challenges of making lifestyle changes to improve one's health.

DESIGN

A course titled Health, Wellness, and Fitness was offered as a 3-credit elective to pharmacy learners in the fall semester of their third year. The course was open to all learners in the College of Pharmacy and were enrolled on a first come, first serve basis. The class size was limited to 17 learners to enable a small, interactive experience. There were 13 females and 4 males enrolled in the class, all of whom completed the class. While unnecessary for this offering, there was a plan to address accessibility issues for learners with limitations. The primary objective of this paper is to describe the design and implementation of a class that places learners in an immersive LM experience.

The course objectives were to formulate an action plan for individual patients that reflect the health, wellness, and fitness components central to being proactive in disease state management, to develop evidence-based, patient-centered care plans for common ailments, to recognize and promote the availability of preventative health services and wellness programs, and to actively train in the "Couch to 5K" program. The secondary objectives of this exploratory study were to assess learners' knowledge and attitudes regarding LM. The instructors hypothesized that engaging learners in required LM interventions would enable learners to fully grasp the potential difficulty of making these interventions in patients. While LM course design has been described in pharmacy, medicine, and allied health literature, no paper has addressed the impact of an immersive LM experience comparable to the one in this study. The lack of LM education literature prohibits us from drawing comparisons between our immersive course and others reported. Our hypothesis was that active learning activities provide learning outcomes that correspond to the "shows how" level of Miller's Taxonomy, and the immersive format would elevate the class outcomes to the "does" level.[17] After the initial introduction to LM, learners were expected to set personal LM goals and work on their goals throughout the semester with support from their classmates and instructor. Learners were given instructions to set Specific, Measurable, Attainable, Realistic, and Timely (SMART) goals and focus on successfully completing a wellness or health-driven goal based on their own area(s) in need of improvement. The instructor provided an example of a goal to the class and offered insight as to why that particular goal might be chosen. Examples of learners' goals included eating more healthfully (eg, incorporating 3-5 servings of vegetables and fruits per day), losing weight, achieving a better level of fitness (eg, working out at least 3 times per week), completing a 5K, abstaining from drinking soda, and decreasing the consumption of sweets and/or unhealthy snacks. Learners reflected on their goals in 3 required written submissions throughout the semester. By experiencing these interventions throughout the semester, the authors anticipated that learners would become better prepared to help patients overcome the challenges associated with implementation of lifestyle medicine.

Table 1 lists a breakdown of concepts covered in the course. These concepts were chosen after a careful review of the LM textbook used in the class and topics that interested learners and would have a significant impact on disease states (eg, exercising to reduce weight, stress, and risk of diabetes and cardiovascular disease). The 7 Dimensions of Wellness were also taught to show that many factors can impact a person's wellness. Other topics selected included those not addressed elsewhere in the curriculum or current events, such as fad diets.

Table 1. Lifestyle Medicine Course Schedule and Breakdown of Concepts Covered

Week	Topic	Proposed Wellness Breaks
1	Introduction to Lifestyle Medicine: Evidence-based Lifestyle Changes/ Self-Analysis/ President's Adult Fitness Challenge	Healthy Alternative Snacking
2	Holiday	
3	Diet Presentations/ Nutrition, Obesity/ Nutrition Logs/ Care Plan	Relaxation Video Experience
4	Stress and the Management of Stress and Mental Health/ Stress Quiz and Discussion/Care Plan	Progressive Muscle Relaxation
5	7 Dimensions of Wellness	Yoga
6	Alcohol Consumption	Taste Test: Organic Egg Comparison
7	Tobacco Cessation	Product Showcase
8	Break	
9	Motivational Interviewing	Color Therapy
10	Substance Abuse/ Science of Addiction/ OTC Abuse	Meditation Exercise
11	Healthy Sleep/ Sleep Log/ Care Plan	The 10-Minute Financial Wellness Plan
November 9	5K Race Saturday 9am	
12	Kinesiology/ Exercise and Wellness	STRETCH!
13	Pediatrics to Geriatrics: A Life Long Commitment to Wellness (Decades Presentations)	Pet Therapy
14	Wellness Analysis and Reflection Discussion	Mindfulness Meditation
15	A New Take on Wellness: Surviving H1N1(Guest Speaker)	Juicing 101

The class met twice per week for 15 weeks. The first class session met for 2 hours in which the learners were presented with a short didactic lecture, engaged in a discussion of key points facilitated by the instructor, then participated in an active learning exercise related to the topic. Assessments, screenings, nutrition logs, subjective, objective, assessment, and plan (SOAP) notes, patient cases, motivational interviewing role play, group presentations, flipped classroom, health and wellness related mobile apps, and the design of patient care plans provided the foundation for the active learning activities.

In lieu of a traditional 10-minute break during the 2-hour class session, learners were given the option of volunteering to lead a 10-15 minute "wellness break" to introduce an LM concept to the class. Learners were afforded this opportunity to research and share LM initiatives that they had a personal interest in (see Table 1). The sessions encompassed a wide variety of topics, from meditation to color therapy. When learners did not have a session planned, the instructor also offered wellness breaks ranging from organic food comparisons to an outdoor mini-yoga session.

In the first class, learners completed the Composite Lifestyle Index (CLI), a tool which measures and helps to identify areas of concern or need such as healthy eating, physical activity, sleep, tobacco use, alcohol consumption, and stress.[13] This tool was designed to identify 6 raw data points of a healthy lifestyle data points to correlate with overall quality of life.[13] Composite Lifestyle Index is used in LM as a surrogate marker for overall health; however it has only been validated in a small study.[7,13] The CLI helped to focus many learners as to their possible areas of improvement. After the basic tenets of LM were introduced and the CLI taken, learners formulated personal SMART goals for the semester with the caveat that they should be able to accomplish their wellness goal over the course of one semester. Many learners chose weight loss as a SMART goal and tried to achieve it over the semester.

The subsequent 1-hour class session was dedicated as the active fitness portion of the class. The President's Adult Fitness Challenge was administered the first week and participants underwent a timed 1.5 mile run or a 1 mile walk, as well as a sit-up, a push-up, and a stretch test.[18] The challenge is the adult version of what children still undertake in primary school, known as the President's Fitness Challenge. Data collected from the challenge tests, as well as height, weight, waist circumference, and Body Mass Index (BMI), can be calculated on the challenge website and compared to similar subjects based on age. Completing the Adult Fitness Challenge provided an overall baseline for the class to measure their own fitness. Learners were of various fitness levels at the beginning of the semester and they completed the challenge again at the end of the semester to compare results (see Table 2).

The Couch to 5K program is a well-known, 9-week program that is available online at no charge.[19] It is structured as a combination walking and running plan designed to motivate the unathletic person who is classified as a "couch potato" to increase their level of fitness and train for and complete a 5K. Guided by this plan, learners were

Table 2. Comparison of Results of Pre- and Postcourse Presidential Fitness Challenge (n=17)

	Preclass Mean (SD)	Postclass Mean (SD)	*P* value
Half Sit-ups	44.8 (15.8)	58.6 (15.0)	<0.001
Push-ups	29.5 (11.0)	35.6 (12.0)	<0.001
Sit and Reach (inches)	17.5 (3.7)	19.9 (3.1)	<0.001
Body Weight	164.2 (50.8)	164.6 (48.8)	0.366
Mile Run (min:sec)	16:58 (0:15)	14:38 (0:10)	0.001

required to train on 2 days of the week alone or with friends/classmates. Many formed small groups and trained together. Learners downloaded the mobile application, "Couch to 5K," and sent results to the instructor on the training days that took place outside of class. The class agreed upon on a race that would coincide with the end of the 9-week program and would also benefit a worthwhile cause: a local YMCA 5K that provides scholarships to underprivileged children. Group exercise encouraged and motivated the learners to be physically active both in and out of class. Learners enthusiastically brought classmates to the fitness portion of class and several faculty and deans also voluntarily participated every week.

A Chinese proverb, "Tell me, I forget. Show me, I remember. Involve me, I understand," provided the essential philosophy for the course design. In addition, the concept of "See one, do one, teach one" was reiterated throughout the semester as learners progressed from learning about LM ("see one") to making changes in their own lives ("do one") to reflecting upon the challenges therein. The "teach one" component was introduced as learners began to offer their own wellness ideas during our 10-15 minute wellness breaks in the 2-hour class sessions. The "teach one" aspect also was reinforced through SOAP notes and longitudinally through reflection questions regarding the implementation of a particular LM concept in practice. Additionally, learners were provided with tools to lead patients ("teach one") in health and wellness, including guides to implement Couch to 5K programs, nutrition plans for patients, sleep hygiene advice, stress reduction ideas, and smoking cessation plans. This study was approved by the Western New England University Institutional Review Board.

EVALUATION AND ASSESSMENT

Seventeen learners were assessed at baseline and 13 at the end of the semester regarding their perceptions of LM, comfort level with providing LM interventions, and empathy for patients when implementing LM interventions. The anonymous survey data were assessed using independent *t* tests to measure significant changes over time.

As this is an elective course, we anticipated many of the learners enrolled would come with preconceived notions and knowledge regarding LM. However, 2 of what we considered the most important secondary objectives, the ability to recommend specific LM interventions and the ability to create a care plan with LM as the primary intervention, did yield significant improvements in the post survey (see Table 3). The third significant result was that learners' self-rating regarding their familiarity with LM concepts improved. However, we did not see many other significant changes throughout the semester based on the survey information. Despite the active component of the course, we did not see a significant change in the self-rating of physical activity, although learners did engage in the class activities. We found this lack of change to be interesting in contrast to the significant improvement in the pre- and postcourse Presidential Fitness Challenge scores (see Table 2).

Three examinations were given throughout the semester to assess comprehension of the concepts and care plan design for patients with regard to lifestyle modifications. When presented with a case, learners were able to accurately identify patient needs and create a SOAP note or care plan. The results of the examination, which all learners passed, revealed the didactic portion of the course was providing foundational knowledge to the learners. Learners were required to submit 3 written reflections that assessed their ability to identify challenges and implement changes to overcome them. Common themes of the reflections centered on the challenges that evolved from the implementation process. Many learners reflected that the concepts were not difficult to comprehend but that the actual long-term practice was very demanding and required much attention and dedication. For example, 10 of the 17 learners stated they would like to lose 5-10 pounds but realized just how difficult that was, especially under the stressful workload of the pharmacy curriculum.

The engagement of the class in the physical exercise component of LM was assessed through the completion of the 5K race as well as attendance at all of the group exercise classes. Learners were instructed to complete the workouts on 2 other days outside of class and send the results to the instructor via the Couch to 5K mobile app or a comparable app. Although not quantified, the influence of social networks on motivation and accountability

Table 3. PreClass and PostClass Survey Results Regarding Lifestyle Medicine (LM) Course Objectives

Question	Pre-Class Mean (SD) n=18	Post-Class Mean (SD) n=13	*P* value
How familiar are you with LM?[a]	2.6 (1.2)	4.4 (0.7)	<0.001
How difficult do you think it is to implement LM practices in your patients?[b]	1.8 (0.5)	1.7 (0.6)	0.27
How comfortable are you with recommending specific LM?[c]	3.1 (1.1)	3.9 (1.1)	0.029
How comfortable are you with creating a care plan with LM as the primary intervention?[c]	2.9 (1.3)	3.9 (0.8)	0.007
How difficult for me is it to empathize with patients who could benefit from LM (eg, counseling a morbidly obese patient on diet and physical activity)?[b]	2.9 (1.1)	3.2 (1.0)	0.24
LM practices for disease prevention are just as important as the treatment of chronic diseases[d]	4.3 (0.6)	4.5 (0.76)	0.23
Experiencing lifestyle medicine practices as a pharmacy learner is essential to empathizing with a patient.[d]	4.2 (0.6)	4.1 (0.9)	0.36
How would you rate your physical activity?[e]	2.2 (0.8)	2.3 (0.8)	0.40

[a] 1-not familiar, 2-somewhat familiar, 3-neutral, 4-familiar, 5-very familiar.
[b] 1-very difficult, 2-somewhat difficult, 3-neutral, 4-easy, 5-very easy.
[c] 1-not at all comfortable, 2-somewhat comfortable, 3-neither comfortable nor uncomfortable, 4-comfortable, 5-very comfortable.
[d] 1-completely disagree, 2-disagree, 3-neither disagree nor agree, 4-agree, 5-completely agree.
[e] 1-not at all active, 2-somewhat active, 3-active, 4-very active.

began to emerge as learners voluntarily partnered up to train together outside of class.

End-of-semester evaluations were all above average within the College of Pharmacy. Comments from learners included "Excellent course," "One of the most helpful and practical so far," "The learning environment was spectacular," "Helped us improve our own lives in addition to teaching us how to help others," "The first of its kind," "I saw my grades in other courses improve as a result of the improvement in my personal health and wellness," and "Great way for me to learn how to relate to my patients in the community."

DISCUSSION

The course was successful in meeting its primary objective of providing learners an immersive experience in LM and educating them about incorporating appropriate LM plans as patient care interventions. The ability to recommend specific LM interventions and the creation of a care plan with LM as the primary intervention also improved significantly.

Personal goal setting was a key component of the elective because successful LM interventions rely on SMART goals. The class experienced a high success rate of personal SMART goals throughout the semester. Selecting small incremental goals allowed for successful implementation of lifestyle modifications. The SMART goal format was used to aid the learners in evaluating the success of achieving their goals. By experiencing this firsthand, learners might be better able to improve their ability to counsel patients on appropriate goal setting and realistic expectations for LM interventions. At the beginning of the course, the 17 learners set a total of 28 LM goals for themselves following the SMART goal format that included improved nutrition, fitness, and weight loss. Learners were able to fully meet 67.9% (n=19) of those goals and partially meet 17.9% (n=5) of the goals. Those goals not met were based on personal weight loss goals, which, despite the improved physical fitness of learners (see Table 2), did not translate into weight loss for the class overall. The Presidential Fitness Challenge served as a baseline and a final measurement of fitness level for the class as it was designed to quantify strength, flexibility, and aerobic capacity. We found it interesting that while learners did not self-rate a significant improvement in their activity level, the Fitness Challenge scores all significantly improved.

An immersive LM elective class could be of interest to any college or school of pharmacy that would like to augment their current offerings and expand the concepts of lifestyle modifications. The design of the course allowed for a great deal of "hands-on" learning, which benefited those who perform well in active-learning activities. Self-directed learning was a part of the course and learners reported enjoying the challenge and gaining perspective on how difficult it can be to make changes even with the knowledge of understanding the impact of LM on disease states. This could be invaluable as generally young and healthy learners begin to take care of aging

and ill patients. Moreover, the class structure and design could be integrated into other courses such as disease state management classes.

Limitations of assessing the secondary objectives included a small sample size and limited participation in the survey. The small sample size may have underpowered the statistical analysis. Interest among students was there as more than half of the third year pharmacy students selected this elective as their first choice. But the instructor wanted a small class for the first implementation. The next offering of the elective would include a larger class size, among other revisions. Additionally, because the class was already familiar with the concepts of LM, they knew that part of the course was designed to show how difficult LM changes are to implement. This may have influenced their responses to the survey. Last, we questioned the understanding of empathy vs sympathy in the survey responses, unless class members had already undertaken previous LM initiatives in their private lives, however these data were not collected.

A review of the practice guidelines for several chronic diseases shows that nearly all guidelines recommend lifestyle medicine related behaviors to both prevent and treat disease.[8] Preventing and treating chronic diseases will save the United States billions of dollars per year. In 2009, the CDC estimated cardiovascular disease and stroke costs alone to be $313.8 billion.[4,20] The old saying, "An ounce of prevention is worth a pound of cure" therefore takes on literal meaning in this context. Rather than trying to provide expensive fixes for patients, health care practitioners should be primary focusing on disease prevention. As the most accessible health care provider, pharmacists have the unique opportunity to lead the implementation of LM and positively impact patients' lives.

SUMMARY

Teaching learners to undertake their own lifestyle modifications proved to be a powerful tool. Learners were required to set 1-2 goals to work on during the elective class and were able to remain focused and be creative in trying to stay on target. It was challenging for many learners, but as they explored the LM concepts in greater depth throughout the semester, they were able to understand the importance of LM and setting small goals to be successful. They were also able to understand the challenges patients may face when implementing real life changes and finding success.

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