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Evaluating Physician Assistant Students' Knowledge and Competence in Lifestyle Medicine:
Assessing the Need for Implementing Lifestyle Medicine Curriculum in Physician Assistant
Programs

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Abstract

This research study evaluated PA students' knowledge and competence in educating patients on topics in lifestyle medicine to assess the need for implementation of lifestyle medicine curriculum in physician assistant programs. An anonymous survey was conducted to obtain subjective data on first- and second-year PA students' knowledge and competence in topics surrounding lifestyle medicine, as well as input on whether additional education on lifestyle medicine would benefit students in practice. A comprehensive literature review was conducted using the *American Academy of Physician Assistants*, *American College of Preventative Medicine*, *American Journal of Preventive Medicine*, Center for Disease Control and Prevention, and PubMed. Search terms included topics regarding the overview of preventative medicine and lifestyle medicine, barriers of patient education in lifestyle medicine, and the implementation of lifestyle medicine curriculum in physician assistant education. Inclusion criteria were studies performed between 2018 and 2023 on topics involving lifestyle medicine education. Exclusion criteria were studies over five years old and studies that did not focus on lifestyle medicine education in medical programs. Overall findings demonstrated second-year students developed increased confidence in topics of lifestyle medicine when compared to first-year students. However, both groups of students expressed they would benefit from additional learning modules and patient simulations focused on topics in lifestyle modification such as smoking/alcohol cessation and diet/exercise.

Introduction

The Center for Disease Control (CDC) has estimated that each year, chronic disease causes 7 of 10 deaths among Americans. Heart disease, cancer, and stroke account for more than 50% of deaths each year. Etiology of these chronic diseases stem from the population's low health literacy regarding knowledge of lifestyle behaviors including alcohol and tobacco use as well as lack of healthy diet and exercise.¹ In order for patients to develop health literacy, they require interaction with patient care providers who have the knowledge and skills to counsel, discuss, and coach patients concerning lifestyle behaviors.²

Medical practice involving shared decision-making and health promotion focusing on lifestyle modifications to disease risk serves as the basis for a medical specialty called lifestyle medicine. The practice of lifestyle medicine involves helping patients and families implement and sustain healthy behaviors that can affect health and quality of life by preventing and treating chronic disease. Unfortunately, implementation of lifestyle medicine is lacking in primary care settings due to healthcare providers decreased competence and self-efficacy in the use of lifestyle medicine. To transform the delivery of health care, providers need to develop the knowledge and skill set to assist patients and families through enhanced patient education on the topics of lifestyle modifications.²

Physician assistants (PAs) are strategically positioned to have valuable conversations with patients about lifestyle modifications. With more than 160,000 PAs in active clinical practice³ and approximately 11,000 entering practice each year⁴ trained to educate and counsel patients about disease and its management, the foundation exists for creating a significant impact on the health literacy of patients and their families. Achieving this significant impact requires

PAs who are well-trained to assist patients in increasing their health literacy by providing them with the knowledge and skills to make positive lifestyle changes.²

Unfortunately, research demonstrates a lack of curricula in PA training programs on addressing provider to patient education in lifestyle modifications to prevent and treat disease. Studies have been conducted assessing PA students' knowledge and competence in lifestyle medicine, as well as addressing the need for implementing a lifestyle medicine curriculum in PA programs. Creating awareness of this gap in education can lead to outcomes that assist in resolving the overwhelming burden of chronic disease in the United States health care system.²

Methods

A comprehensive literature review was conducted using the following databases: *American Academy of Physician Assistants*, *American College of Preventative Medicine*, *American Journal of Preventive Medicine*, Center for Disease Control and Prevention, and PubMed. The search terms utilized include "Preventative Medicine in Primary Care," "Lifestyle Medicine Background," "Lifestyle Medicine Overview," "Lifestyle Medicine," "Lifestyle Medicine Curriculum in Physician Assistant Education," "Physician Assistant," "United States Deaths and Mortality," and "United States Chronic Disease." A total of twenty sources were used for this review.

Inclusion criteria were studies performed between 2018 and 2023 on topics involving lifestyle medicine education. The demographics include any age, race, ethnicity, or socioeconomic status. Exclusion criteria were studies over five years old and studies that did not focus on lifestyle medicine education in medical programs. Non-interventional studies utilized in this review include articles on the overview of lifestyle and preventative medicine and barriers of patient education in lifestyle medicine. In addition to literature review, data was obtained via an

anonymous survey to evaluate subjective data on first- and second-year PA students' knowledge and competence in topics surrounding lifestyle medicine, as well as input on whether additional education in lifestyle medicine would benefit students in practice.

Literature Review

Overview of Lifestyle and Preventive Medicine

According to the American College of Preventive Medicine (ACPM), lifestyle medicine is a medical approach that uses evidence-based behavioral interventions to prevent, treat, and manage chronic disease. The ACPM has integrated core competencies of lifestyle medicine that guide primary care providers to understand the impact lifestyle has on health. Through the approach of incorporating lifestyle behaviors into practice, providers can educate patients about nutrition, physical activity, stress management, sleep, social support, and environmental exposures to assist them in making lifelong progress in their health. Lifestyle medicine is a core competency of preventive medicine and supports the continued exploration of evidence-based practices and need for education in lifestyle medicine.⁵

Clinical preventative medicine is defined as the maintenance and promotion of health and the reduction of risk factors that result in injury and disease. Primary prevention results in decreasing the occurrence of a disease, such as smoking cessation, immunization, or exercise programs. The goal of primary prevention is that the disease does not occur. Secondary prevention (screening) is early detection of a disease or condition. Secondary prevention is important as it occurs in the asymptomatic stage before symptoms occur and works to avoid delayed treatment. An example includes mammographic detection of breast cancer. Tertiary prevention attempts to avoid consequences of an existing clinical disease. An example includes cardiac rehabilitation to prevent recurrence of a myocardial infarction.⁶

In the 1920's, the American Medical Association endorsed the periodic health examination. This service became widely used in healthcare as studies showed decreased mortality in patient's holding life insurance policies that had undergone this examination by protocol. Long-term studies of the effects of periodic health examinations were followed up by the US Preventative Services Task Force, which provided evidence of the effectiveness of a variety of preventative interventions.⁶

The evolution of preventative medicine has shown decreased morbidity and mortality in both acute and chronic conditions. However, research shows that providers practicing preventative medicine are not utilizing the services to their full potential. Studies have shown that most physicians practice some aspects of preventive medicine, although recommendations for screening tests, immunizations, and health counseling fall short of meeting guidelines.⁶

Addressing the Barriers in Patient Education of Lifestyle Medicine

An important issue in the practice of lifestyle medicine may arise in education for medical providers, which lacks focus on scientific evidence of the relationship between nutrition and a healthy lifestyle. Practitioners and administrators run into barriers as they focus on diagnosis and treatment rather than directing resources toward new and innovative practices. This exists due to low reimbursement rates for counseling on lifestyle modifications. Fear also exists around the fact that patients will find making changes in lifestyle challenging and not sustainable.⁷

Barriers also exist around societal factors in lifestyle medicine. For example, national dietary guidelines are loosely advised out of concern for the economics of certain industries. Rather than recognizing and adhering to evidence-based recommendations regarding the consumption of

meat and dairy products, pleasure-seeking aspects of food are promoted, and their health and nutritional effects are overlooked.⁷

Americans with lower levels of income and education are also associated with unhealthy diets. Economic barriers include food prices and food insecurity, while physical barriers include the availability of unhealthy food. Low food security is defined by reduced quality, variety, or desirability of the diet, which results in families unable to afford balanced meals. Many food-insecure households lean towards lower-cost foods that offer generous amounts of calories, plenty of added sugars and fats, excess sodium, and marginal nutritional value.⁸

The US Department of Agriculture (USDA) has estimated the national prevalence of food insecurity has taken over approximately 1 in 9 households.⁹ Individuals with lower economic status and lack of dietary education are linked to higher rates of obesity, diabetes, asthma, and other chronic conditions. Food-insecure households also reported more stress, anxiety, and depression.⁸

To combat the barriers that exist around lifestyle medicine, dedicated research to document the value and decreased costs associated with lifestyle clinics is essential. Recognizing that many conditions are reversible with proper patient education and ongoing support is the key to successfully providing for patients. Several healthcare providers may not have the information readily available to share with patients, and some may not have time to support such a program despite their intentions. Many providers feel they are unqualified to discuss lifestyle concerns, even though patients are actively seeking information.⁷

Fortunately, the American College of Lifestyle Medicine (ACLM) has addressed barriers through courses, conferences, and online programs to aid practitioners in establishing the knowledge needed to promote a healthy lifestyle to their patients. Through this resource,

providers can discover evidence-based education using the six pillars of lifestyle medicine to treat, reverse, and prevent chronic disease through lifestyle change.¹⁰

An ideal scenario involves launching a lifestyle medicine clinic within a healthcare organization to promote the wellness of patients. Creating a trained group of committed professionals would be essential for a successful patient experience. A variety of lifestyle medicine approaches have been implemented, and they all share common themes including a provider trained in lifestyle techniques, supportive staff, patient educators with nutrition backgrounds, and access to behavior health. A group of this capacity can be utilized to encourage, educate, and support patients for motivation to achieve their goals.⁷

Implementation of Lifestyle Medicine Curriculum in Medical Education

Lifestyle medicine is considered a subspecialty of prevention medicine, differing in that it focuses on the continuum of a disease rather than screening and preventing disease onset. Providers are trained to target behaviors in nutrition, physical activity, stress, sleep management, substance use, and social support. Unfortunately, a disconnect between healthcare providers and lifestyle medicine exists due to deficient education in the competencies of lifestyle medicine.¹¹

To bridge the gap in training providers in lifestyle medicine, the American Medical Association passed a resolution to support the incorporation of lifestyle medicine curricula in medical schools in 2017.¹² Since then, The American College of Lifestyle Medicine Undergraduate Medical Education (ACLM UME) Task Force created competencies that residents should be able to perform on their first day of residency. A few competencies include conducting a comprehensive lifestyle-focused history and physical exam, including appropriate screenings to assess the six pillars of lifestyle medicine; utilizing evidence-based behavior change counseling to support patients in lifestyle changes; and collaborating with patients and

their families to develop evidence-based, achievable, written plans such as lifestyle prescriptions.¹²

Within this structured framework, ACLM encourages lifestyle medicine concepts and topics within the curriculum throughout all four years of medical school to obtain optimal understanding of the material and implementation into patient care. Institutions are certified based on the number of hours students spend in lifestyle medicine training, the percentage of competencies met, and the enrichment opportunities that are available.¹²

In 2019, Trilk et al. conducted a study involving physicians, residents, and medical students. Results from physicians concluded that although they understand it is their responsibility to educate patients on lifestyle modifications, they lack knowledge, clinical skills, time, and available resources/reimbursement to do so. 94% of residents agreed it was their responsibility to address nutrition issues at primary care visits, however, 14% felt they did not receive the necessary training to do so. Medical students came into school believing nutrition counseling and education played a large role in their careers, however, by their fourth year of school, less than 50% felt this was appropriately addressed. Each of these surveys highlight the foundational issue of lack of training and importance of lifestyle medicine in undergraduate medical education.¹³

Numerous medical schools in the United States have made advancements in integrating lifestyle medicine into their curriculum. Harvard School of Medicine integrated lectures including risk stratification and prescription, doctor self-care, nutrition counseling, and the use of the coach approach via “Lunch and learn” sessions. New York School of Medicine integrated lifestyle medicine by promoting healthy lifestyle on campus to students by having two fitness centers, physical activity programs, weekly mindfulness sessions, and healthy food options.

Other programs have initiated lifestyle medicine or culinary nutritional training. Examples of efforts made by medical schools to create their own lifestyle medicine programs and competencies has shown exemplary improvement in preparing students to use these tools in a variety of patient encounters.¹³

Physician Assistant Students' Knowledge and Competencies in Lifestyle Medicine

Although there are several institutions striving to improve lifestyle medicine education for healthcare providers, there remains a gap between these advances and the training of PAs. PAs are licensed healthcare providers who, while supervised by a physician, practice medicine as part of a collaborative interdisciplinary team.¹¹ The structure of PA programs are similar to undergraduate medical school, however the average time to complete these programs is 27 months.³ PAs can practice in a multitude of specialties, primary care being the most common with the highest demand. Like physicians, PAs also experience patients in need of education in lifestyle medicine and are required to receive training in patient education and counseling.¹¹

The Lifestyle Medicine Development Project was established with the goal of implementing a lifestyle medicine curriculum for PA students to fill the educational gap. Keyes et al. conducted a study focused on measuring the impact of a new lifestyle medicine curriculum on student confidence and applied skills related to lifestyle medicine.¹¹

The study was conducted with 40 first-year students enrolled in a United States PA program. The curriculum students used was developed and implemented in the 2016/2017 academic year. Four, 50-minute modules titled nutrition, physical activity, stress management, and smoking cessation were developed based on guidance from the ACLM and Lifestyle Medicine Education Collaborative. Studies were conducted using two assessments, one activity required students to complete a prevention and lifestyle assessment write-up. The second activity required students to

demonstrate critical thinking by seeing a simulated patient and completing a note with recommended prevention screenings based on the US Preventive Services Task Force.¹¹

Pre- and post-curriculum self-competency surveys were conducted, which assessed self-perceived knowledge of lifestyle medicine, the importance placed on lifestyle medicine in clinical practice, and self-perceived ability in competencies related to lifestyle medicine. Post-curriculum surveys showed significant improvement in self-perceived competency. Likert scores remained unchanged in the areas of student belief in the importance of lifestyle medicine in clinical practice and students' personal ability to practice healthy behaviors.¹¹

Positive results are appreciated in this study, with the pre- and post-curriculum survey revealing significant improvement in students' ability to practice lifestyle medicine. Four short modules delivering the lifestyle medicine curriculum allows for minimal change in the current curriculum. Modules could also be utilized by practitioners to increase competency in counseling on lifestyle behaviors and preparing lifestyle prescriptions. Limitations of this study include the small sample size and unreliable self-assessments as students may inaccurately estimate self-perceived knowledge.¹¹

Wetherill et al. conducted a similar study with second-year PA students. Participants completed a 4 week, 2-credit hour course focused on the four core lifestyle medicine competencies for primary care providers, emphasizing nutritional aspects, physical activity, smoking cessation, and alcohol use. Results were calculated using the modified 5A's framework (assess, advise, agree, assist, and arrange) for lifestyle counseling.¹⁴ The 5A's is a strategy for primary care providers to provide minimal intervention to guide the process of counseling a patient about behavior change. This process is well known in behavior change theory and utilized primarily in busy practice settings.¹⁵

To rate their knowledge and confidence for each of the five health behaviors, respondents used the Likert scale. Students receiving the intervention improved in both knowledge and confidence for the 5A's of nutrition counseling compared to the control group. Results from this study concluded that a hybrid approach with didactic and experiential components may be required to improve PA student competency in lifestyle medicine.¹⁴

It is recognized that this may not be practical for many PA programs due to lack of equal interest among faculty and program administration. Other limitations involve lack of follow up with a second survey and not including objective assessments of nutrition counseling skills. Additionally, more research is needed to determine if placing this course immediately before students' clinical rotations resulted in improvement in counseling behaviors.¹⁴

Phillips et al. conducted a study that took place during PA students' rotations in the clinical year. Twenty-five Physical Medicine and Rehabilitation (PM&R) rotations were conducted from 2017 to 2020. Thirty-nine PA students received approximately twelve hours of whole health lifestyle medicine (WH-LM) training which included live and recorded video presentations, observation in the clinical settings, and personalized self-care activities that covered a range of lifestyle medicine topics. The topics included exercise and physical activity, nutrition, motivational interviewing, and self-care education.¹⁶

The primary focus of this study was to create a WH-LM curriculum for PA students and evaluate the change in knowledge and self-efficacy in applying this skill in clinical practice. The study demonstrated improvement in WH-LM knowledge from pre- to post-training. Scores on the students' perceived ability to practice WH-LM increased significantly as well. These results show potential for implementation of WH-LM in PA students' curriculum.¹⁶

This study's limitations included the lack of measurable data that may not be standardized for use in comparison studies. It also included variations of the training experience in each rotation due to availability of faculty and students' clinical schedules.¹⁶

Stauffer et al. extended the findings from Phillips et al. through PA students approach to clinical vignettes after completing the WH-LM curriculum. The goal of this study was to use clinical vignettes and open-ended responses as a different technique to assess changes in the way students managed clinical care to patients.¹⁷

Each response provided by the students was analyzed and themes such as "affirmation and support," "learn why this is important [to the patient]," and "invoke a plan [with the patient] using motivational interviewing" were utilized in identifying students' competence in WH-LM. Similar to Phillips et al., this study received a p value of < 0.001 , showing a substantial revolution in PA students' language and approach to patient care from pre- to post-WH-LM curriculum. Limitations of this study are similar to Phillips et al.; in that it includes a small sample size of twenty PA students and no standardization for demonstrating overall growth in WH-LM competence.¹⁷

Another form of research conducted by North et al. utilized learning modules for students enrolled in allied health programs including occupational therapy, physical therapy, and physician assistant studies. Modules focused on improving students' knowledge of integrative health concepts such as social determinants of health, lifestyle behavior change, and provider wellbeing in interprofessional practice. The results improved pre- and post-curriculum with students demonstrating an overall increase in self-perception of current knowledge in integrative medicine.¹⁸

This study was conducted to create a model for the inclusion of integrative health content in allied health programs. It shows potential for improving students' understanding of the importance of utilizing lifestyle practices and working with healthcare professionals to provide optimal patient care. Limitations are comparable to other studies, which lack long-term data. Further studies should be focused on analyzing the differences between disciplines before and after shared curricular interventions which could allow for learning modules to be tailored for each individual allied health program.¹⁸

Addressing the Need for Lifestyle Medicine Curriculum in Physician Assistant Programs

The application of lifestyle medicine in primary care is lacking, largely due to providers competence and self-efficacy of appropriate patient education. Lifestyle medicine education can be revolutionized by initiating foundational knowledge and skills to properly educate patients and family members to practice healthy lifestyle behaviors. The role of PAs has been created to serve populations that may be overlooked by the shortage of primary care physicians. PAs can strive to better initiate interventions and preventative strategies during patient encounters when provided proper training and education on counseling about disease and management.²

Based on the National Commission on Certification of Physician Assistants (NCCPA), it is within the scope of practice for PAs to counsel and educate on preventing health problems and maintaining health. These competencies created by the NCCPA highlight the need for PAs to receive targeted training on positive lifestyle behaviors. The goal of most providers is to increase patients' health literacy by empowering them and providing knowledge and skills to improve lifestyle behaviors.²

PA education is designed to be accelerated, consisting of one year of didactic education and one year dedicated to hands-on training through a variety of clinical specialties. Although

this is proven effective in forming competent advanced practice providers in an efficient manner, it creates barriers when addressing change in the already well-established curriculum. Shifting the views of traditional disease focused medicine to health promotion has the potential to provide long-lasting change in our population. Therefore, it is important that educators consider the development of evidence-based curricula that can be widely useful for future providers.²

Results

Over a two-week period, 65 first- and second-year PA students at Augsburg University were recruited via email invitation to complete an anonymous online survey. Both groups of students completed a ten-question Likert scale survey evaluating their self-perceived knowledge and competence in lifestyle medicine. First-year students are individuals that have completed one year of didactic education and have not experienced patient care settings as PA students. Second-year students have completed one year of didactic education and one year of clinical experience in a variety of patient care settings as PA students. In total, 49 students completed the survey, 28 first-year students and 21 second-year students.

Quantitative data was obtained as percentages to compare the survey responses between the first- and second-year PA students. There was no significant difference among both groups in that they strongly agreed educating patients in lifestyle modifications such as smoking/alcohol cessation and diet/exercise is within the PA scope of practice (**Figure 1**). Students also agreed they were very likely to promote healthy behaviors as a foundation of medical care (**Figure 2**) and utilize aspects of lifestyle medicine nearly every day in clinical practice (**Figure 3**).

Figure 1. It is within the scope of practice for physician assistants to counsel patients on lifestyle modifications (smoking/alcohol cessation and diet/exercise).

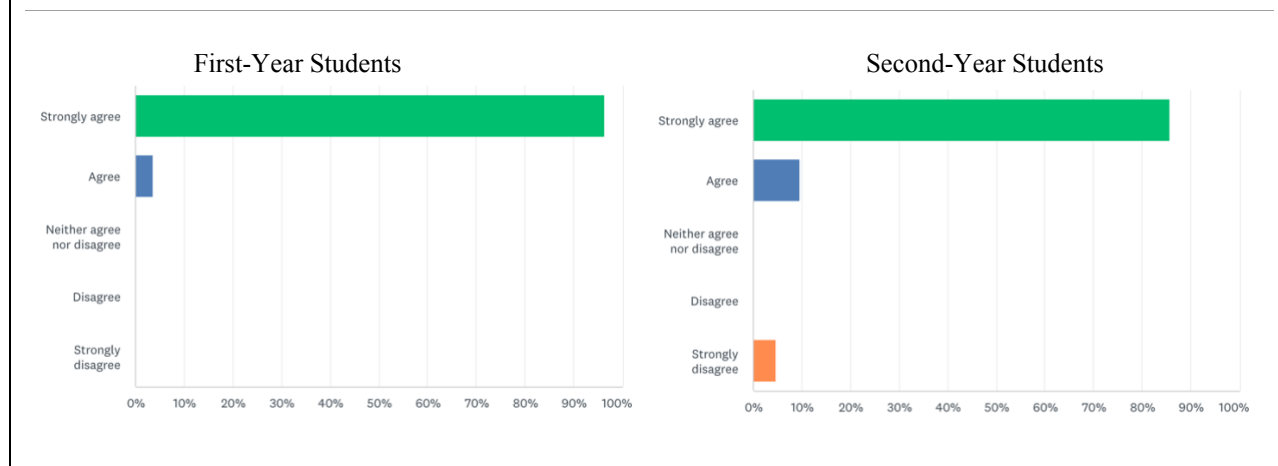


Figure 2. How likely are you to promote healthy behaviors as a foundation to medical care?

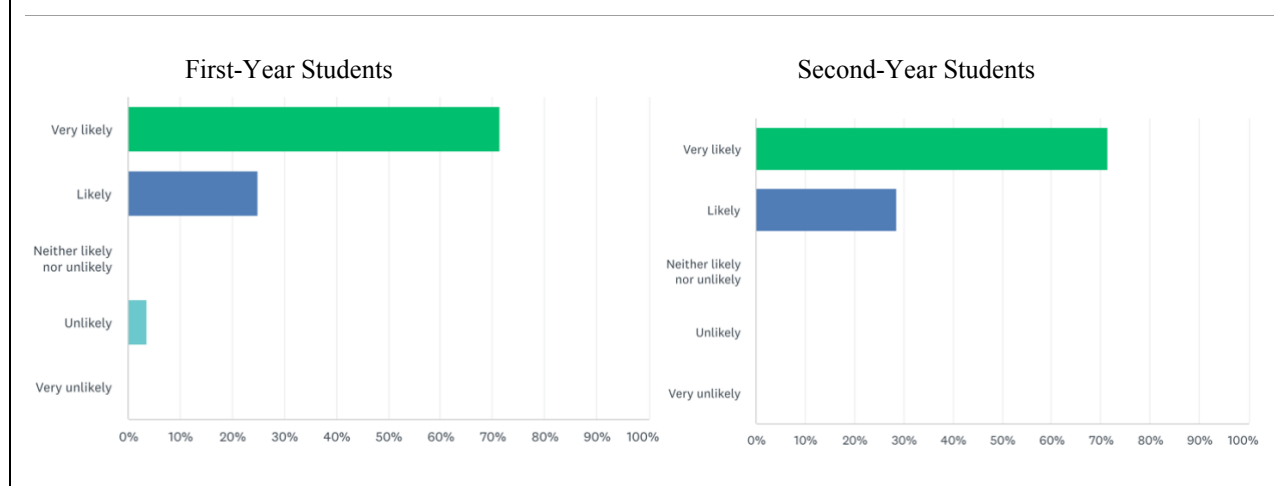
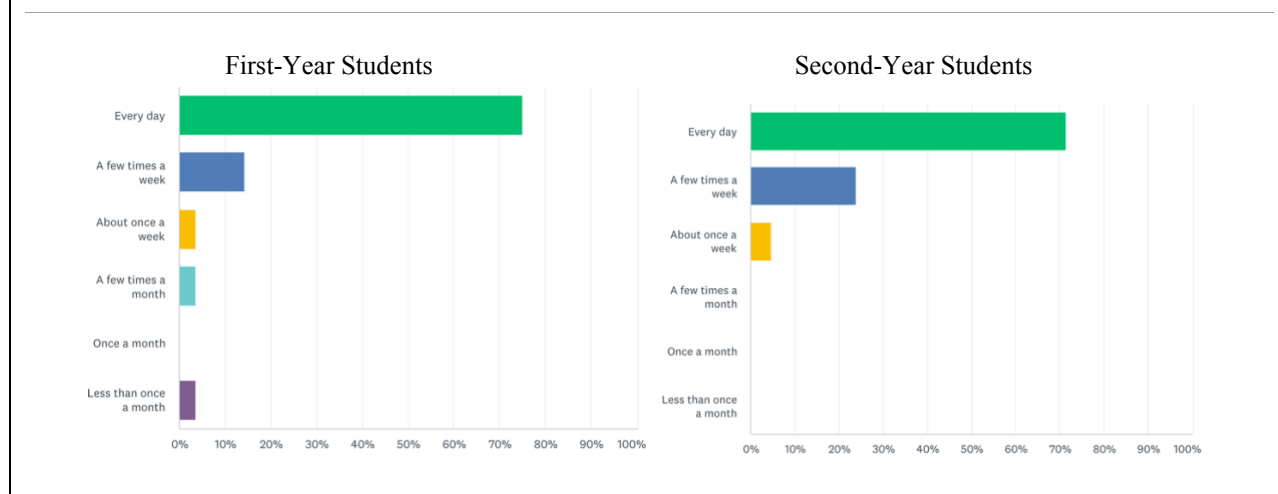


Figure 3. What is your likelihood of using lifestyle medicine in clinical practice?



Minor dissimilarities were identified when comparing the effectiveness of simulation patients in preparing students to educate patients in topics of lifestyle modifications. 50% (14) of first-year and 52% (11) of second-year students agreed that simulation patients were “somewhat effective.” While 4% (1) of first-year and 14% (3) of second-year students felt simulation patients were “not so effective” (**Figure 4**). 46% (13) of first-year students stated they would benefit “a great deal” from learning modules and patient simulations focused on patient education in lifestyle modifications (smoking/alcohol cessation and diet/exercise). 23% (5) of second-year students agreed with this statement, however, 47% (10) of second-year students felt this would benefit “a lot,” which is a step down from benefiting “a great deal” (**Figure 5**).

Figure 4. How effective were Augsburg University simulation patients in preparing you to educate patients on lifestyle modifications including smoking/alcohol cessation and diet/exercise?

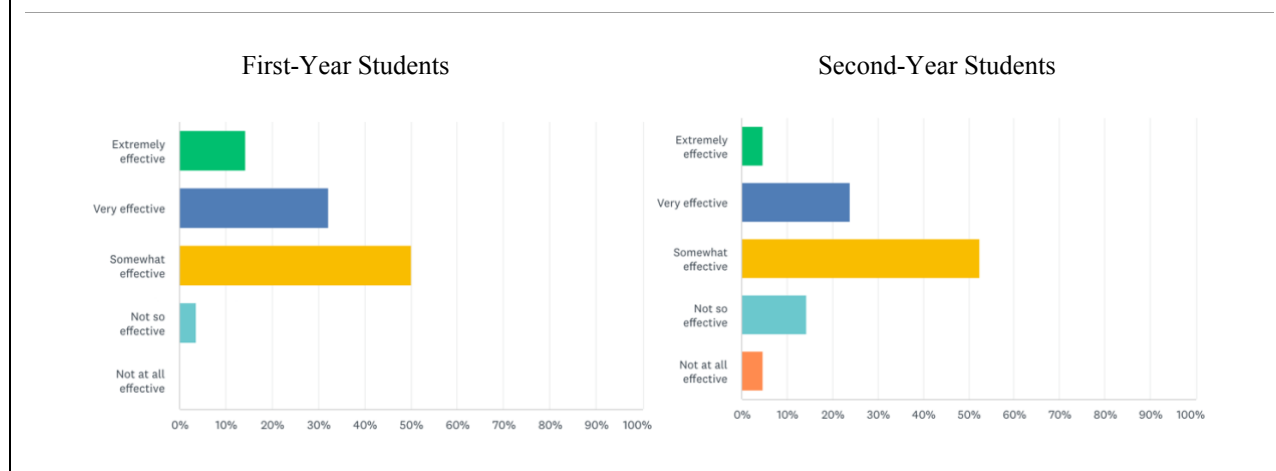
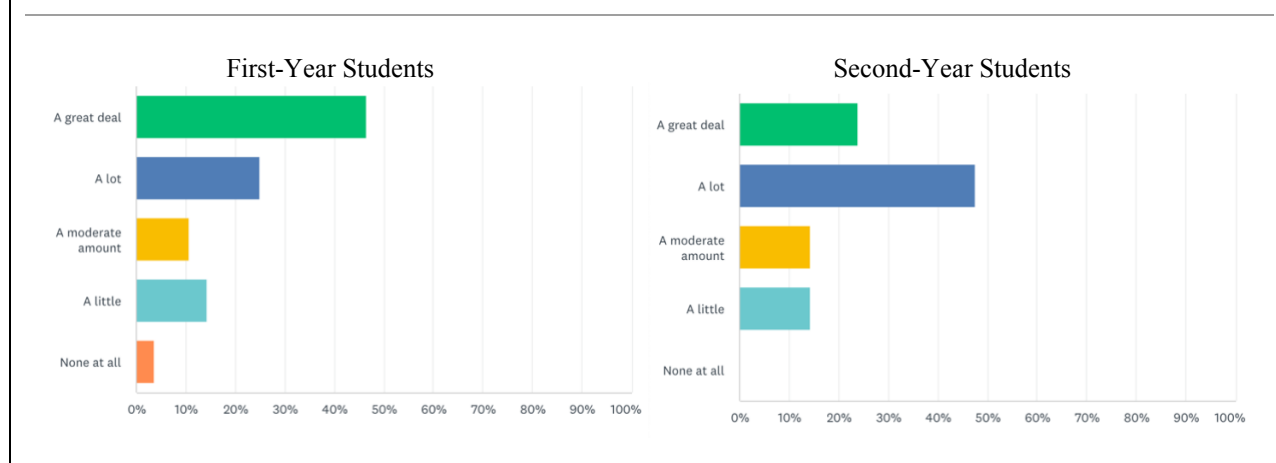


Figure 5. Would you benefit from learning modules and patient simulations focused on patient education in lifestyle modifications such as smoking/alcohol cessation and diet/exercise during your didactic year of PA school?



Differences in data were found when evaluating the confidence of students using motivational interviewing to counsel patients and their families on the benefits of lifestyle modifications (smoking/alcohol cessation and diet/exercise). 60% (17) of first-year students felt “somewhat confident” while 57% (12) of second-year students felt “very confident.” An additional 19% (4) of second-year students expressed they were “extremely confident” in counseling patients in topics of lifestyle modifications (**Figure 6**). Distinctions are also made when comparing the confidence of students collaborating with patients and families to develop

evidence-based, achievable, and specific written action plans as lifestyle prescriptions. 57% (16) of first-year students felt “somewhat confident,” and 32% (9) felt “very confident.” 19% (4) of second-year students felt “somewhat confident,” while 52% (11) reported feeling “very confident” (Figure 7).

Variations in responses were also identified in evaluating the confidence of first- and second-year students in utilizing nationally recognized screening guidelines from the U.S. Preventative Services Task Force (UPSTF) to guide patients in managing their health behaviors and lifestyles. 57% (16) of first-year students felt “somewhat confident” while 43% of second-year students felt “very confident,” with an additional 24% (5) feeling “extremely confident” (Figure 8).

Figure 6. Using motivational interviewing, how confident would you feel counseling patients and their families on the benefits of lifestyle modifications (smoking/alcohol cessation and diet/exercise)?

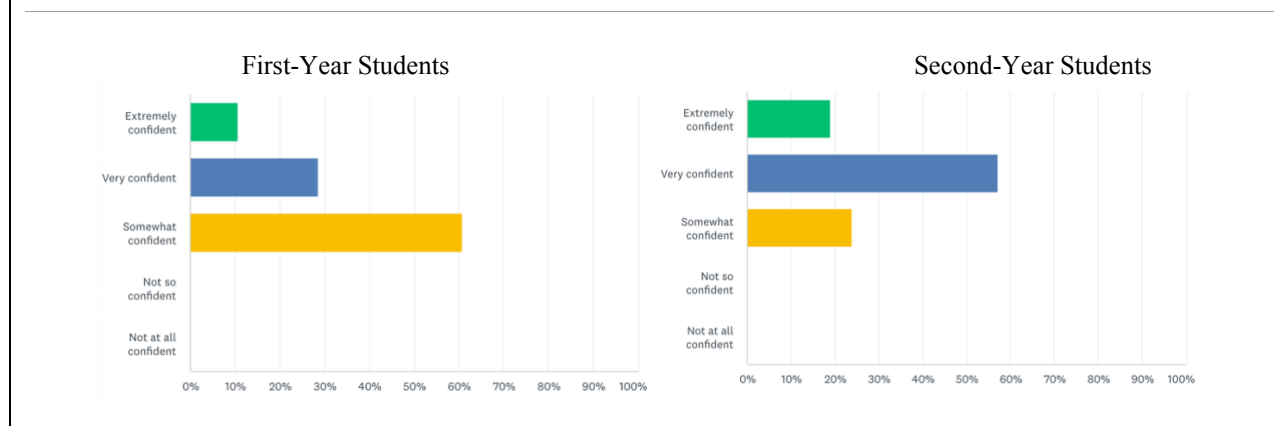


Figure 7. How confident are you in collaborating with patients and families to develop evidence-based, achievable, and specific written action plans as lifestyle prescriptions?

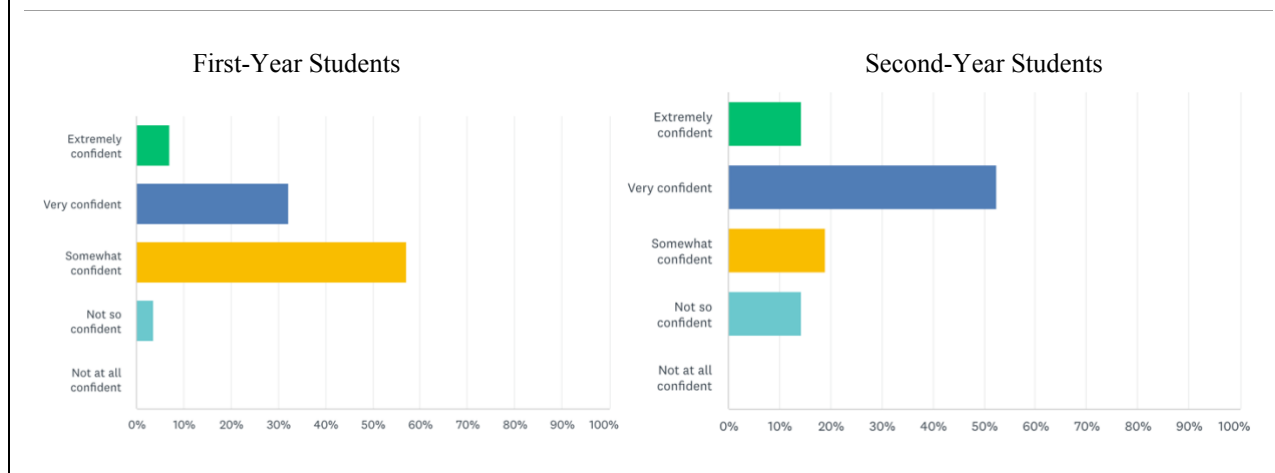
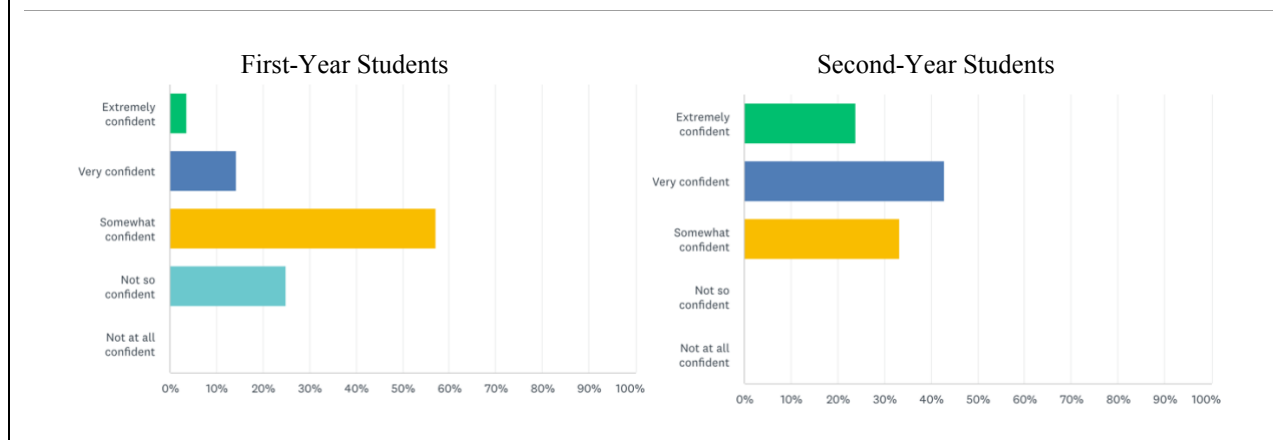


Figure 8. How confident are you in utilizing nationally recognized screening guidelines from the U.S. Preventative Services Task Force (UPSTF) to guide patients in managing their health behaviors and lifestyles?



Discussion

Lifestyle intervention and behavior modification is routinely included in national guidelines for the prevention and treatment of chronic diseases. Despite these recommendations, few medical education programs are providing students with skills to effectively counsel patients in healthy behavior modifications.¹⁹ Overall, outcomes from first- and second-year PA students surveyed on self-perceived knowledge and competence in topics surrounding lifestyle medicine further cemented existing research studies. Among survey responses, all students agreed lifestyle

factors were an important foundation to medical care and promoting these behaviors would significantly benefit patients. In line with the research question, the results demonstrate both groups of students felt the need for additional learning modules and patient simulations focused on patient education in lifestyle modifications such as smoking/alcohol cessation and diet/exercise during their didactic year.

By collecting survey responses from first- and second-year PA students, this study can be compared to Wetherill et al. conducted in 2019. Wetherill et al. confirmed that using a hybrid approach with didactic and experimental components may be required to improve PA students' competency in lifestyle medicine. This research demonstrated that second-year students, after completing one didactic year and one clinical year within a variety of patient care settings, felt more confident than first-year students in nearly every survey response regarding the practice of lifestyle medicine. Second-year students expressed more confidence in using motivational interviewing to educate patients in topics of healthy lifestyle behaviors, achieving written action plans to create lifestyle prescriptions useful to patients, and utilizing national guidelines from the USPSTF to guide patients in managing their health.

It is important to correlate findings from this study to results from Phillips et al. conducted in 2021. Phillips et al. identifies barriers in collecting data from second-year students as each student's clinical experiences differ, resulting in challenges evaluating standardized improvement in student knowledge in lifestyle medicine. In this study, when asked to rate their confidence in utilizing national guidelines from the USPSTF, second-year students' responses varied. Although they expressed increased confidence when compared to the first-year students, percentages of each response were split nearly equal ranging from "somewhat confident," "very

confident,” and “extremely confident;” resulting in difficulty interpreting the true impact of clinical rotations on students’ confidence in utilizing the USPSTF guidelines.

While previous research has focused on students within the same cohort, results from this study demonstrated benefits by comparing two separate PA classes. The data contributed to a clearer understanding of the expected outcomes, which demonstrated second-year students to be more confident and knowledgeable in topics of lifestyle medicine. The results might suggest that completing additional learning modules and patient simulations focused on patient education in lifestyle modifications may not be effective, meaning that completing one year of clinical rotations could be a sufficient alternative in preparation for medical practice. However, based on the findings in similar studies, a more plausible explanation could be that patient encounters during clinical rotations encompass a wide variety of settings. This results in differences in learning opportunities, demonstrating that not all second-year students complete the program with an equal and adequate amount of knowledge and competence in lifestyle medicine.

At this time, results of this study have evaluated only self-perceived knowledge, skills, and attitudes toward lifestyle medicine. This leads to limitations as it does not include an assessment of students’ knowledge and skills in either simulated or patient care experiences. For second-year students, the large number of clinical settings and small sample size results in difficulty assessing whether clinical rotations included a sufficient variety of topics surrounding lifestyle medicine. The survey also received an uneven number of responses between first- and second-year students. With 28 first-year and 21 second-year student responses, additional responses from second-year students could slightly alter the data obtained.

In future studies, it would be beneficial to organize an objective clinical examination with simulated patients. This would allow for direct observation and comparison of first- and second-

year students' lifestyle modification patient counseling skills. Additional research with larger sample sizes, a variety of students in different levels of medical education, and the continued incorporation of learning modules is needed to establish concrete evidence in implementing lifestyle medicine curricula in medical education.

Conclusion

The health of individuals in the United States involves countless challenges, many of which derive from preventable lifestyle-associated disease.²⁰ Prevalence of these disease states is one of the main causes of morbidity and mortality, with its link to poor lifestyle behaviors.¹¹ Current research recognizes that chronic, preventable disease could be linked to lack of provider knowledge in educating patients on healthy lifestyle behaviors.

The purpose of this research study was to evaluate PA students' knowledge and competence in topics surrounding lifestyle medicine, specifically students' ability to educate patients on alcohol/smoking cessation and diet/exercise. By surveying first- and second-year PA students regarding their self-perceived knowledge in lifestyle medicine, this study established that students felt addressing healthy lifestyle behaviors with patients was within their scope of practice as future PAs. The survey demonstrated most students would prefer additional lifestyle medicine modules and patient counseling simulations throughout their PA program.

There remains a strong indication for health professions educators to adopt lifestyle medicine-based curricula into training programs, as lifestyle-related behaviors continue to be the key drivers of chronic disease.¹⁷ Despite condensed curricula in PA programs, additional education on evidence-based actionable tools for lifestyle behavior change could better prepare students for entrance into medical practice.

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