INSTRUCTIONAL DESIGN AND ASSESSMENT

An Active Learning Complementary and Alternative Medicine Session in a Self-Care Therapeutics Class

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Objective. To provide an interactive, non-supplement based complementary and alternative medicine (CAM) session in a self-care therapeutics class and to evaluate the effect of the session on pharmacy students' perceptions and knowledge of CAM.

Design. Second professional year pharmacy students enrolled in a required 3-credit course titled Self-Care Therapeutics participated in an active learning session on CAM. Students physically engaged in 5 separate active learning CAM sessions including massage therapy, Tai Chi, yoga, progressive muscle relaxation, and Reiki.

Assessment. Students were assessed on both knowledge and perception of CAM. Concept mastery was assessed using a written examination and individual readiness assurance tests (iRAT) and team readiness assurance tests (tRAT). Perception of CAM was measured using both a pre-session and a post-session survey.

Conclusion. Participating in an intensive, active learning CAM session provided an opportunity to increase students' knowledge of CAM and an effective strategy for providing the learner with the experience to better envision incorporation into patient therapies.

Keywords: Complementary and alternative medicine (CAM), active learning, self-care

INTRODUCTION

Products and treatments labeled "alternative medicine" by Western medicine are actually predominant modalities of health care in traditional Asian cultures or Eastern medicine.¹ Over the years, many people have been merging Eastern medicine with Western medicine, integrating CAM therapies with conventional medical treatments, but the former are not always embraced by Western medicine.² While healthy adults as well as ill patients use CAM to maintain or improve health and reduce disease risk, they aren't able to easily integrate it with their traditional therapy because their health care providers lack knowledge or awareness of it.²

Alternative medicine or therapies are not widely taught in medical or pharmacy schools in the United States, nor are they available at many American hospitals or health care facilities.¹ Studies surveying American pharmacy schools concluded that while approximately 80% of schools offer some form of CAM training in the curriculum, CAM education was primarily offered as electives and generally focused on natural products rather than the full range of CAM

practices.³⁻⁵ Many health care professionals perceive their knowledge of CAM as limited and have little personal experience with it.⁶ Pharmacists typically rate their own knowledge of CAM as inadequate and feel uncomfortable answering patient questions related to it.⁷⁻¹⁰

Yet the 2002 National Health Interview Survey reported 50% of all adults in the United States have used some form of CAM.¹¹ In 2007, adults in the United States spent nearly \$34 billion on complementary and alternative medicine. Thanks to Good and Beautiful products, including natural products, classes, and visits to CAM providers.¹² Between 2002 and 2007, increased use was seen among adults for acupuncture, deep breathing exercises, massage therapy, meditation, naturopathy, and yoga.¹³

Increased use of natural products and alternative therapies could have a significant impact on the practice of pharmacy in the United States, which would necessitate practitioners to be better versed in CAM and its complementary use in Western medicine.¹¹ For example, potential drug interactions with CAM could become a concern because some patients might not disclose the herbal medications they are taking. This in turn could impact health and the health care system by resulting in additional adverse outcomes. Pharmacists are the most accessible health care professional, and if they need to

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field questions regarding CAM, they could positively impact a patient's health through counseling and an adequate CAM knowledge base.

Pharmacists perceive barriers to providing CAM guidance that include a lack of suitable training and deficiencies in available information sources. Recognizing this knowledge deficit, pharmacists have proposed ways to overcome these barriers, such as more extensive formal training.¹⁴ For example, the Accreditation Council for Pharmacy Education (ACPE) 2007 Standards for Accreditation recommended didactic coursework in dietary supplements, alternative medical treatments, evaluation of efficacy and safety of CAM, and herbal-drug interactions, as well as exposure to these products during advanced pharmacy practice experiences.¹⁵ Guideline 12 of the ACPE Standards focuses on professional competencies to provide patient care based on therapeutic principles and evidence-based data and to promote health improvement, wellness, and disease prevention.¹⁵ Guideline 13.3 states that the college or school curriculum should address issues related to a general broadening of perspective including communication skills, professionalism, critical thinking, problem-solving, health and wellness, patient safety, teamwork, mathematical skills, and information management. Moreover, the Center for the Advancement of Pharmaceutical Education (CAPE) Outcomes also suggests students be well versed in traditional and CAM modalities for their APPEs so they are able to recommend prescription and nonprescription medications, dietary supplements, diet and nutrition guidance, traditional nondrug therapies, and complementary and alternative therapies.¹⁶

Current pharmacy school offerings vary, from a small amount of CAM coursework to electives, to more comprehensive coursework. In order for pharmacists to promote health, wellness, and disease prevention among patients increasingly inclined to use CAM, they need better formal training and experience. Patients seek out CAM either as therapy complementary to their traditional treatment or as alternative therapy that would encompass modalities other than traditional ones. Patients use CAM to promote a healthy lifestyle, achieve wellness, and reduce disease risk. Improving CAM offerings to students would not only help to meet such patient needs, but would also directly align with the needs addressed by the ACPE Standards for Accreditation and the CAPE recommendations.^{15,16}

DESIGN

An immersive CAM session was offered in the required 3-credit Self-Care Therapeutics class during the spring of the second professional year. The instructional design of the self-care class included a combination of case-based didactic learning, team-based activities, and active learning

sessions. During the CAM session, learners participated in 5 intensive, 15-minute physically active mini-sessions, each incorporating a different CAM modality. Experts from our institution and the community led learners through each session in their respective specialties at separate "CAM Stations." Specialties included massage therapy, Reiki, Tai Chi, yoga, and progressive muscle relaxation (PMR). Learners were expected to gain foundational knowledge, make connections between assigned readings and application, and finally apply the knowledge to cases on their final exam. Session scheduling was based on practitioner availability and the willingness of volunteer practitioners (as there was no guaranteed honorarium, which may have influenced the representation of CAM modalities).

Prior to the interactive CAM session, learners were offered a voluntary survey approved by the Institutional Review Board. They were then assigned readings from their textbook, the *Handbook of Nonprescription Drugs*, and other materials provided by the various specialists. They also completed a case-based, CAM individual readiness assurance test (iRAT). The iRAT was modified from its traditional use of delivering it during class and was completed outside of class to allow for more time to participate in the CAM sessions. Throughout the semester the iRAT/tRAT (or team readiness assurance test) was given to assess the weekly self-care topics to ensure that learners were reading ahead and prepared for class. The survey served to assess learners' perceptions and knowledge about their understanding of, experience with, and comfort with incorporating CAM into a treatment. Additionally, the survey was meant to assess if learners would be more likely to recommend CAM to an appropriate patient after the intensive learning experience.

Sixty-nine learners participated and were divided into two sections, and further separated into groups of 6-7 to facilitate interactive, small group learning experience. To accommodate this, the session required more than the normal allotted time. Instructors were allowed to incorporate one of the professional development hours that preceded the Self-Care Therapeutics class into class time in order to allow enough time for each CAM mini-session and give 1.5 hours to each of the 2 sections. Learners rotated through 15 minutes of experiential time in each CAM station and were allotted 2 minutes to change stations. A facilitator helped coordinate the rotations.

Before participating, students signed a waiver that mitigated outside practitioner responsibility. Due to the physical component (actually doing yoga, practicing Tai Chi, etc), participation was optional. For learners unable or unwilling to participate, an alternative written CAM exercise was designed to enhance learner knowledge. Two learners opted for the written assignment. The alternative

assignment involved searching the primary literature for quality, evidence-based documentation on the benefits of CAM and which disease states may be impacted by CAM. As the CAM session occurred at the end of the semester, case-based questions were included on the final exam. The questions related to the history of the modalities and their application to patient cases, which illustrated the relevance of CAM in Western society and the impact a pharmacist could have on wellness and disease states.

Within 48 hours of completing each CAM station, students submitted a written reflection on the active learning experience. At the beginning of the next class session (2 days later), students were asked to complete a follow-up survey and take a tRAT. Conducting the tRAT after the session gave students more uninterrupted time with the experiential part. Students were tested on the information in a case-based format on the final exam.

EVALUATION AND ASSESSMENT

Performance was assessed using presession iRATs and postsession tRATs (Table 1). Postsession scores improved significantly, with the entire class receiving an “A.” High stakes assessments and a comparison of questions based on assigned readings and the interactive session indicated that learners performed better on case-based application type questions relating directly to their CAM session. Although learners had assigned readings that covered historical aspects of CAM, they did significantly worse on this portion. For example, 61.4% answered the Tai Chi history question correctly versus 92.8% who answered the Tai Chi case-based application question correctly. We believe these assessments illustrate the value and impact of interactive sessions on learner performance.

The presession survey response rate was 93% (N=67), and the postsession survey response rate was 78% (n=54). Learners who opted out of the session did not complete the survey. In the presession survey, 30% (n=21) of learners reported they were not familiar with any CAM modality. After the session, only 9% (n=6) reported being unfamiliar with CAM ($p=0.02$). For the purpose of the survey, authors considered learners to be familiar with the concept if they confirmed familiarity and demonstrated the ability to specify CAM modalities in an open-ended follow-up question. Of the 69.7% (n=46) who reported familiarity or experience with CAM, 64% (n=29) reported their knowledge was

limited to two or less separate modalities, specifically massage therapy and/or yoga. The lack of awareness regarding other Eastern or alternative medicine modalities commonly employed by patients for health maintenance was unexpected. Yoga and massage are ubiquitous in Western culture and used to some degree in Western medicine. The presession survey did not categorize if the lack of familiarity was due to a knowledge gap preventing students from identifying yoga and massage as CAM, or if students were genuinely unaware of their existence.

Perceptions regarding the role of CAM in health care changed after the intensive session (Table 2). Prior to the session, 54.7% (n=35) of participants responded that they felt CAM did not fit into the current health care model; whereas after, 85.2% (n=46) felt that it did ($p<0.05$). Almost all of the postsession survey respondents (96.2%, n=51) affirmed that participating in the CAM session improved their understanding compared to just reading assigned text. We believe that experiencing CAM first hand gave students a deeper understanding of its role and empathy for modalities they may not have fully understood in the context of Western medicine. This was illustrated in the postsession survey where 100% of respondents (n=54) said they would recommend CAM to a patient if their condition might benefit from it.

In the postsession survey, 94.3% (n=50) of respondents said they benefited personally and 96.3% (n=52) benefited professionally from the experience. Positive feedback was provided by 98% (n=69) of students, who described their changed perceptions and new enthusiasm for a nontraditional classroom experience. This attitudinal scale showed a deeper understanding and increased empathy for CAM. Survey results also demonstrated a greater awareness among students of various CAM modalities, with 89% of them being able to list 4 or more modalities compared to 64% who were able to list 1 or 2 prior to the session.

DISCUSSION

The intensive, interactive approach improved attitudes regarding CAM and learner performance on assessment. Other institutions that include CAM in their curriculum might want to consider providing a similar session to improve knowledge about and attitudes toward CAM. Learners reported that after the session they perceived reduced stress, an improved sense of well being, and decreased anxiety. These reflections allude to students’ ability to extrapolate this personal benefit to the professional setting and the benefits their patients may derive from CAM. As one learner stated, “I found this a great tool. I think this was a way to help make us aware of alternative medicine because our patients will be using these techniques or may have questions about them.” Many of the learners vowed to begin a CAM practice

Table 1. Individual Readiness Assurance Test (iRAT)/Team Readiness Assurance Test (tRAT) Grade Distribution

Letter Grade	A (90%)	B (80%)	C (70%)	F (<70%)
iRAT	14	47	0	9
tRAT	71	0	0	0

Table 2. Results of Classroom Survey Regarding Learner Knowledge and Perceptions of CAM

Question	Presession % Yes (N=67)	Postsession % Yes (n=54)	p
Are you familiar with complementary and alternative medicine (CAM)?	69.7 (n=46)	90.7 (n=49)	p=0.02
Does CAM fit into our current health care model?	52.2 (n=35)	77.8 (n=42)	p<0.05
Does the pharmacist have a role in CAM?	56.7 (n=38)	85.2 (n=46)	p<0.05

on their own to help manage the stress of pharmacy school. One learner reflected “great learning opportunity for us.” The practitioners who presented the CAM modalities were amenable to teaching our classes, even without the promise of an honorarium. They were pleased to have the opportunity to present their respective discipline to pharmacy learners and hoped to expand the learners’ understanding of CAM and its role in health care today. They also reported leaving the session enthusiastic and ready to incorporate new modalities into their own practices or revisit old ones.

A limitation to the CAM sessions/this study was the availability of the practitioners. Acupuncture, for example, was mentioned by several learners as something they would benefit from experiencing. Though an acupuncturist was scheduled, he was unable to attend on the actual day. In the future we plan to incorporate additional modalities. Further limitations include a decreased postsession survey response rate, which prevented us from quantifying the impact on all learners in the course.

SUMMARY

CAM is an important therapeutic modality that can be used in treatment; however pharmacists need appropriate exposure to it in their education to accurately recommend it or augment current therapy with it. The purpose of this session was to improve assessment performance and attitudes regarding CAM by having learners experience firsthand what CAM encompasses. After participating in the active learning session incorporating 5 different modalities of CAM, students increased their knowledge and understanding of a variety of CAM, the role it plays the current Western medical model, and the role pharmacists can play in recommending CAM to patients. The interactive CAM session was valuable and added a new dimension to the learners’ educational experience.

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