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**Participation in an Educational Module for Medical Students in
Regards to Complementary and Alternative Medicine (CAM)
Therapies**

Christine Green

Heather Zore

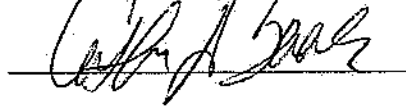
Participation in an Educational Module for Medical Students in Regards to Complementary and
Alternative Medicine (CAM) Therapies.

Christine Green and Heather Zore

Marian University

Leighton School of Nursing

Chair: Dr. Cathryn Baack



(Signature)

Committee member: Dr. Karen Hardin



(Signature)

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Abstract

Background and Review of the Literature

In the United States, the use of complementary and alternative medicine (CAM) has increased. The term CAM refers to a variety of alternative therapies and techniques usually not part of standard medical care. According to the National Center for Complementary and Integrative Health (NCCIH), more than thirty percent of adults and twelve percent of children use methods not typically considered conventional, or mainstream practice. Complementary medicine can be utilized with standard medical treatments for a more patient-centered collaborative approach, referred to as integrative medicine (IM). Although gaining in popularity and driven by patients, many conventional healthcare providers lack the awareness and familiarity to discuss, recommend, or refer CAM therapies.

Purpose

The purpose of this DNP project is to investigate medical students' knowledge, beliefs, attitudes and future collaboration practices related to complementary therapies through the use of an online educational portal.

Method

This project implemented an educational intervention in order to improve the knowledge of students enrolled in a Doctor of Osteopathic Medicine Program in regards to Complementary and Alternative Medicine.

Implementation Procedure

An internet based resource tool was developed as a resource guide, providing information about complimentary licensed practitioners, therapies, best practices, protocols,

Participation in an Educational Module for Medical Students in Regards to Complementary and Alternative Medicine (CAM) Therapies

Introduction

This project is submitted to the faculty of Marian University Leighton School of Nursing as partial fulfillment of degree requirements for the Doctor of Nursing Practice, Family Nurse Practitioner Track. Complementary and Alternative medicine is being utilized by a large number of Americans. However, many patients often do not disclose this information with their healthcare providers. Possible reasons include not being asked or thinking that their provider does not care to know. Many healthcare providers often fail to engage in conversations regarding CAM usage and therapies with patients. Research supports that lack of knowledge plays a role in the discussion and referral practices of CAM between healthcare providers and patients.

Background

In the United States and worldwide, there has been an increase in the use and awareness of complementary and alternative therapies (CAM). According to the National Center for Complementary and Integrative Health (NCCIH), more than 30% of patients, or 1 in 4 use and request complementary therapies (Nahin, Barnes, & Stussman, 2016). Although patients are requesting and using CAM, many conventional healthcare providers lack the awareness or knowledge related to alternative therapies to proficiently communicate or recommend therapies. A semi-structured interview was conducted to gauge general practitioners' beliefs and referral of CAM (Jarvis, Perry, Smith, Terry, & Peters, 2015). Physicians did feel as though there is a need for funding evidence-based research as the patient demand for CAM is increasing. In addition to knowledge deficits related to alternative therapies, conventional providers often have personal beliefs and attitudes related to CAM. Studies also revealed that complimentary modalities were

To gather and understand existing CAM research related to attitudes, behaviors, communication, and referrals, a scoping review methodology was used to assess the current literature. Search terms were selected based upon the National Institute of Health National Center for Complementary and Integrative Health (NCCIH) and the Academic Collaborative for Integrative Health (Integrativehealth.org) definitions and categories of CAM therapies and licensed integrative health medicine professions. Search words included *alternative medicine*, *complementary medicine*, *integrative health care*, *integrative medicine*, and *CAM therapies*. Specific therapies (e.g., chiropractic, massage therapy, pain management, vitamins) were not searched.

The NCCIH defines Complementary and Alternative Medicine as two distinct terms. Complementary medicine is defined as non-mainstream practices that are used in conjunction with conventional medicine. When non-mainstream practices are used as an alternative to conventional medicine it is defined as alternative medicine. CAM includes a wide variety of health approaches including the use of natural products such as herbs and mind and body practices such as massage and chiropractic manipulation (National Center for Complementary and Integrative Health, 2019a).

Studies included in the review were conducted with a variety of healthcare providers, medical educators, and staff involved in primary care or clinical practice settings. The studies were conducted in the United States as well as several other countries from continents around the world.

Most of the instruments used for data collection were either self-designed questionnaires or surveys conducted through the web, email, or in-person via interviews. There is not a single

decisions with the patient while optimizing and supporting life changes (NIKIM, 2013). Respondents were asked to rate subtopic items categorized under each of the four pillars, as well as asked if they would consider introducing CAM therapies, such as music and mind-body therapies into practice. One study (Jakovlievic et al., 2013), utilized the validated 10-item CAM health belief question (CHBQ) to question medical students, residents and fellows (Lie & Boker, 2004). The CHBQ was designed to survey the attitudes of graduate level or higher health professions related to awareness levels of alternative therapy modalities. Trail (2013), explored nurses' attitudes and knowledge of CAM with the NrcAM K&A survey developed to measure nursing attitudes, experiences, and educational interests with alternative therapies. Outcomes were related to defining and identifying specific therapies and assessing baseline knowledge and thoughts related to implementation into practice (Trail, 2013). Other studies used self-administered questionnaires which included demographics, personal and recommended use of various CAM therapies, knowledge, referral and recommendation, attitudes and current, and future practices (Bahall & Legall, 2017). The surveys also assessed if healthcare providers would like to increase their knowledge by use of continuing education or via case studies (Patel & Kitzmiller, 2017).

Many of the respondents reported that their personal lack of knowledge played a key role in the communication and referral of CAM. Bahall & Legall (2017) conducted a survey which specifically asked 172 conventional providers about their familiarity of alternative therapies. The results showed 50-75% reported fair knowledge of herbal, spiritual, and physical therapies. Approximately 26% reported that they were unlikely to recommend CAM, although 67.5% of physicians were most likely to ask patients about use (Bahall & Legall, 2017). Physicians in the U.S. would like to increase their knowledge of CAM, but lack the time for continued education

was assessed. There were different experience levels among the sample population as there was a mix of first, second, third, and fourth year students. It can be concluded that all of the students were college educated with a minimum of a bachelor's degree as it is a minimum requirement of the DO program at the university (Marian University, 2019a). Most participants also had a higher level of computer literacy since the students use technology in their required coursework (Marian University, 2019b).

Another aspect that needed to be assessed were what were the desired learning outcomes. After completion of the educational module, it was desired that the medical students would have an increased knowledge of CAM therapies. This improved knowledge of CAM may also have increased the use and referral to CAM services in their future medical practice.

The second step in the ADDIE model for education was to design the educational module. An outline was made that included the educational material that was to be included in the educational module. This step also included determining which questions will be included in the pre- and post-assessment surveys that the student completed. By determining what questions would be analyzed, the educational module was better tailored towards ensuring the included education is meaningful. Other things that were considered during the design phase included determining how much time the students would be able to dedicate to completing both surveys and the educational module. This was done to help ensure that there is not a high drop-out rate among participants and that they complete the education module.

The third step was the development stage. During the development stage, information from the educational outlines was entered into the software platform that was used to make the educational module accessible to the participants. This was also the stage in which all of the

module. The estimated completion date for the educational module was July 8th, 2019. This was planned to allow time for any necessary modifications that would be needed to be made prior to opening the educational module to students. The estimated date of going live with the educational module was July 15th, 2019. Due to unforeseen circumstances, the actual go live-date of the educational module was delayed until August 5th 2019. Data was collected over a four-day period after the go live date and analysis was then completed.

Organizational Readiness

A SWOT analysis was used to assist in determining stakeholder assessment and organizational readiness. There was support for implementing the educational module for COM students. Discussion with committee members revealed that there have been increased efforts between the university College of Medicine and the School of Nursing to increase collaboration among their respective students. This was an opportunity for the medical students to participate in DNP students' research and learn more about DNP projects.

One consideration was resistance to change within the organization may have included disapproval of the educational module by the COM. Also, students may not want have wanted to participate for a variety of reasons, including it being optional and time constraints.

It was recommended that an incentive be offered to the medical students in exchange for their participation in the educational module and the pre- and post- survey. As this educational module was not a mandatory requirement of their education and the study was taking place over the summer semester, lack of participation was a perceived barrier to the project. An incentive of a \$10 Amazon gift card was given to students in exchange for their participation. This was given to students in the form of a redeemable code which was provided after the post-survey. Funds for

Setting

This project was implemented at a private university in the Midwest. It took place at a private College of Medicine. Since students were able to access the educational module and surveys over the internet, they did not need to be physically on campus in order to participate.

Participants

Participants included first through fourth year medical students enrolled in the university College of Medicine's Doctor of Osteopathic Medicine program. It would have been ideal for 100 students to participate in order to have a sufficient sample size to gather data from.

Ultimately, 59 students participated in the project.

Perceived Barriers

Perceived barriers included a lack of support from key stakeholders. This new educational module contained information that may have already been included in the COM's program curriculum. Another foreseeable issue was that the educational module would add more work to an already busy workload for the students. An additional barrier may have included resistance from faculty to want to include CAM therapy education to their students as it is not a traditional medical therapy.

Method of Evaluation

The method of evaluation was to evaluate the increase in knowledge levels, opinions, attitudes, and the likelihood of future collaboration and CAM recommendations of the DO students from information that was gathered from the pre- and post-surveys.

Measurement Instruments/ Tools

The tools that were used included the web-based platform and third party plug-ins which supported the education module and the pre- and post-surveys. The hosting server that was used

made to the initial project which altered some the information that was submitted in the request. Therefore, a second project exemption request was sent to the MU IRB on April 27th, 2019 and was determined to be exempt on May 3rd, 2019 and no further review was needed. The protocol is on record with the Marian University IRB under protocol # S19.033. See Appendix D for secondary IRB request that was submitted for exemption.

Students were informed that their participation in this project was optional and was in no way required by their program. No identifying information was collected other than student email addresses which were protected in a locked file. The email addresses were collected and kept only for the sole purpose of distributing their gift card incentive and was not linked to the actual surveys they submitted.

Data Analysis

Data was analyzed to determine whether there was a statistically significant increase in the knowledge, opinions, attitudes, and the future referral and collaboration practices of the students after completing the educational module. Ultimately, 59 students completed the entire educational module and pre- and post-survey. Of the 59 students, 4 reported that they were in their 1st year, 27 reported that they were in the 2nd year, 15 reported that they were in their 3rd year, and 13 reported that they were in their fourth year. There were nearly an equal number of male and female participants and all of the participants were between ages 18 and 40.

The participation and drop-off rates of students were analyzed to help determine whether there may have been a better time or manner in which to deliver the educational material to the students. Over the four-day period that the educational module was open there were 114 visitors to the website. Sixty-two students began the pre-survey, but only 59 students finished the video and post-survey. Therefore, there was a 5% drop-off rate among participants. One contributing

Limitations to this project included that the data for this project was collected from a small number of student participants from a single university (n=59) and that the participants may have been biased as this project was implemented by a fellow student of their university. Also, since the surveys were anonymous, the survey data may not have actually been collected from the actual student, but another person could have taken the surveys for the student.

Conclusion

Overall, the students were very receptive to the educational module. Eighty three percent of them agreed that the educational module helped enhance their knowledge of the most popular CAM therapies used by Americans and 38% reported that they felt more confident discussing CAM with patients after participating in the educational module. The desired outcome of this project was to improve CAM knowledge levels and improve dialogue between providers and patients.

One survey question that was asked focused on whether the students felt that their medical school curriculum has covered CAM therapies thoroughly enough to consult and educate future patients. Of the 59 students 66% of them stated that they did not feel that their curriculum covered CAM thoroughly enough. One variable for the high negative response may have been that the students have simply not received that information yet in their curriculum. Therefore, the data was further analyzed to focus on only the students who self-reported as fourth year students. Sixty-nine percent of the 13 fourth year students stated that they did not receive thorough CAM education in their medical school curriculum. Furthermore, 61% of the fourth-year students agreed that information about CAM and how to integrate alternative therapies should be included throughout their medical education curriculum.

Section V: References

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Appendix B

Pre- and Post-Survey Questions

CAM Pre-Survey

Q1 Age:

- 18-26
 - 27-32
 - 33-40
 - 41-50
 - 50+
-

Q2 Gender:

- Male
 - Female
 - Other
 - Choose Not to Answer
-

Q5 Which of the following practice do you integrate into your personal health and wellness routine? (Select ALL that may apply)

- Western Biomedicine (Conventional)
 - Traditional Chinese Medicine
 - Complimentary & Alternative Medicine
 - Combination (CAM + Conventional)
 - Other
-

Q6 What is your current religion, if any?

- Christian
 - Jewish
 - Muslim
 - Buddhist
 - Hindu
 - Atheist
 - Other
 - Choose Not to Answer
-

Q9 Do you feel your medical school curriculum has covered the previously mentioned CAM therapies thoroughly enough to consult and educate your future patients?

- Yes
- No
- Unsure

Q10 Please rank your current knowledge of CAM therapies:

	Excellent	Good	Poor
Massage Therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acupuncture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chiropractic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Herbs / Supplements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Q11 Approximately what percentage of Americans do you believe use CAM therapies on a regular basis?

- 0%
- 10%
- 30%
- 50%
- 75%
- 90%

Q14 Which of the following CAM practitioners do you believe are educated, licensed, and capable of providing safe and adequate patient care alongside conventional medicine providers (DO/MD/NP's)? (Select ALL that may apply)

- Massage Therapists
- Acupuncturists
- Chiropractic Physicians
- Naturopaths

Q15 As a healthcare provider, I should be able to counsel my patients about the most common CAM therapies:

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Q16

I believe the following CAM practitioners should work in collaborative teams with DO/MD/NP's.

Q19 I plan to discuss with and educate future patients about CAM therapies and practitioners:

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Q20 I would like more information about the following CAM therapies and practitioners: (Select ALL that apply)

- Meditation/ Relaxation Techniques
- Massage Therapy
- Chiropractic
- Acupuncture
- Herbs/ Supplements
- I do not wish to learn about CAM at this time

CAM Post-Survey

Q4 Would you recommend this educational module to other medical students to enhance their knowledge of Complementary and Alternative Medicine?

- Highly Recommend
- Somewhat Recommend
- Unsure
- Would Not Recommend

Q5 How would you rate the length of the video?

- Too Lengthy
- Perfect Length
- Too Short

Q6 How would you rate the quality of the educational video?

- Above Average
- Average
- Unsure
- Poor
- Very Poor

Q10 Please rank your current knowledge of CAM therapies:

	Excellent	Good	Poor
Massage Therapy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acupuncture	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Chiropractic	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Herbs / Supplements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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- I do not wish to learn about CAM at this time

Appendix D**IRB request.****Marian University Institutional Review Board (IRB) Form 1**

Please complete all of the following questions by clearly indicating which statements apply to your current research proposal and return this form to either Beverly Day (bdav@marian.edu), if you are proposing *social/behavioral* research, or Claire Rutledge-Sakha (crutledgesakha@marian.edu), if you are proposing *biomedical* research. Within 14 days, you will receive information on how to proceed with your research application. All communication to and from the IRB is confidential. Any questions regarding this form may be directed to the IRB Chair.

Principal Investigator: Christine Green & Heather Zore Faculty Mentor (if PI is a student): Dr. Cathryn Baack

Sponsor (if applicable): _____

Title of Study: Does participation in an educational module for medical students in a Doctor of Osteopathic Medicine (DO) program improve knowledge, opinions, and future collaboration practices in regards to complementary and alternative medicine (CAM) therapies?

1. Please provide a 150-300 word abstract describing the nature of your proposed study and the procedures involved:

In the United States, the use of complementary and alternative medicine (CAM) has increased. The term CAM refers to a variety of alternative therapies and techniques usually not part of standard medical care. According to the National Center for Complementary and Integrative Health (NCCIH), more than thirty percent of adults and twelve percent of children use methods not typically considered conventional, or mainstream practice. Complementary medicine can be utilized with standard medical treatments for a more patient-centered collaborative approach, referred to as integrative medicine (IM). Although gaining in popularity and driven by patients, many conventional healthcare providers lack the awareness and familiarity to discuss, recommend, or refer CAM therapies. The purpose of this DNP project is to investigate medical students' knowledge, beliefs, attitudes and collaboration practices related to complementary therapies, as well as determine if an online educational portal can be utilized to expand knowledge, change attitudes, recommendations for care, and future collaboration practices related to CAM.

Based upon the outcome of a comprehensive literature review conducted in December, 2018, which questioned conventional healthcare providers' familiarity, attitudes, beliefs, and use of alternative therapies, a website will be developed as a

4. Will your study involve human tissues, human cells, or human cell cultures?
- Yes
 - No

If yes, explain what type of human tissues, human cells, or human cell cultures and how they will be obtained:

5. Will your study involve any vulnerable populations, such as children, prisoners, pregnant women, or mentally disabled persons?
- Yes
 - No

If yes, will the study present more than minimal risk?

- Yes
- No

If yes, explain the nature of the risk involved:

6. Will your study take place only in established or commonly accepted educational settings and involve only normal education practices?
- Yes
 - No - Participants will be accessing the website and questionnaires on their own time, which is not part of their formal education.
7. Will your study involve data collection procedures other than surveys, educational tests, interviews, or observation of public behavior?
- Yes
 - No
8. If your study's participants include children in commonly accepted educational settings, using normal education tests and practices, will you also be collecting data using surveys directed to the children?
- Yes
 - No
9. Could public disclosure of any identifiable data you collect place the participants at risk of criminal or civil liability, or be damaging to the participants' financial standing, employability, or reputation?
- Yes
 - No
10. Will your study involve only collection of existing data, documents, records, or pathological or diagnostic specimens that are publicly available?
- Yes
 - No

- a. Yes
- b. No**

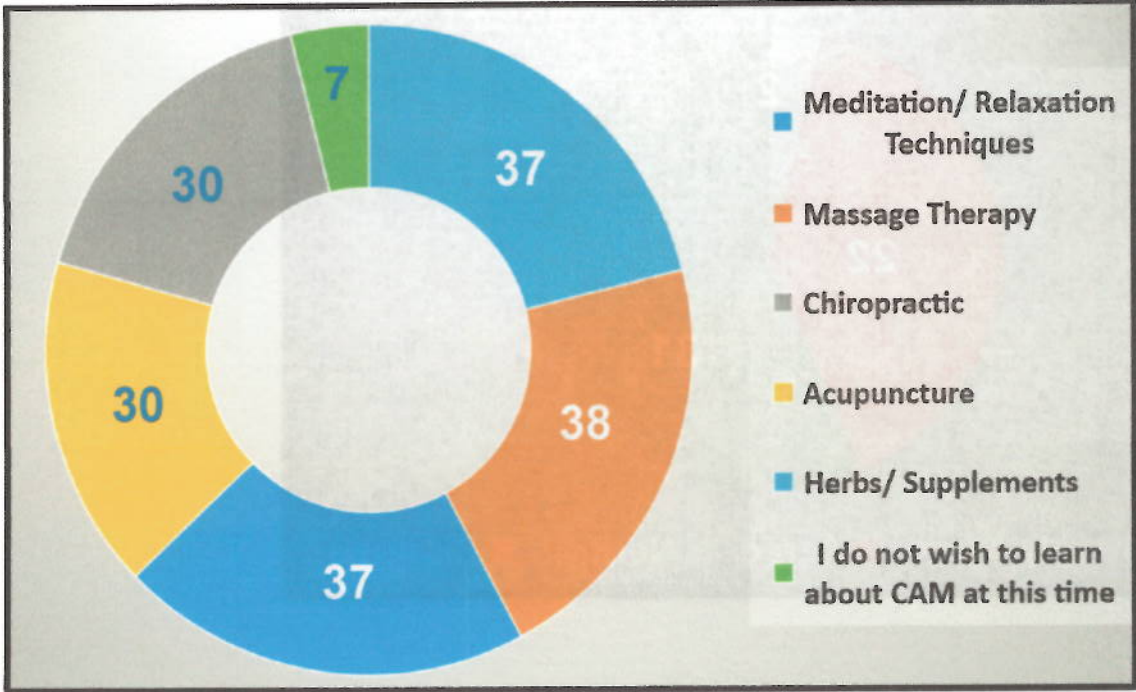
16. Will your study involve questions about the participants' demographics, education, politics, state of mind, cognitive abilities, or opinion?

- a. Yes**
- b. No

17. Will your study involve questions about the participants' health?

- a. Yes
- b. No**

I would like more information about the following CAM therapies and practitioners: (Select ALL that apply)



Which CAM therapies do you believe are evidence-based? (Select ALL that apply)

