

9-2-2009

The Effect of Experiential Education on Students' Attitudes About Complementary & Alternative Medicine Practices

Eva Kaul

Mariebeth Velasquez

Follow this and additional works at: <https://digitalrepository.unm.edu/ume-research-papers>

Recommended Citation

Kaul, Eva and Mariebeth Velasquez. "The Effect of Experiential Education on Students' Attitudes About Complementary & Alternative Medicine Practices." (2009). <https://digitalrepository.unm.edu/ume-research-papers/90>

This Presentation is brought to you for free and open access by the Health Sciences Center Student Scholarship at UNM Digital Repository. It has been accepted for inclusion in Undergraduate Medical Student Research by an authorized administrator of UNM Digital Repository. For more information, please contact disc@unm.edu.

**The Effect of Experiential Education on Students' Attitudes About
Complementary & Alternative Medicine Practices**

Students:

Eva C Kaul
Mariebeth B. Velasquez
Class of 2009
School of Medicine
University of New Mexico

Mentor:

Arti Prasad, M.D.
Department of Internal Medicine
Integrative Medicine Division
University of New Mexico
School of Medicine

Abstract. OBJECTIVES: To evaluate the effectiveness of an experiential Complementary and Alternative Medicine (CAM) education session in changing medical students' beliefs, attitudes, and comfort level with CAM. DESIGN: Students attended a 3 hour class on Mindfulness Based Stress Reduction with a trained provider, and completed a Likert scale survey of their agreement with various statements about CAM both pre- and post-session. ASSESSMENT: Changes in agreement with 7 of the 10 items reached statistical significance, including increase in students' subjective level of knowledge about CAM, decrease in the belief that CAM is too controversial to discuss with patients, increase in perceived ability to find information about CAM, and increase in support for the inclusion of CAM in the medical school curriculum. CONCLUSION: A CAM experiential session was effective in changing students' beliefs and attitudes, and improved their comfort levels with CAM. Similar sessions could be a valuable addition to the medical school curriculum.

Background

As defined by the World Health Organization, complementary and alternative medicine (CAM) is “a broad set of health-care practices that are not part of a country's own tradition and not integrated into the dominant health care system. Other terms sometimes used to describe these health care practices include ‘natural medicine’, ‘non-conventional medicine’ and ‘holistic medicine.’” (Bulletin of the World Health Organization, 2004) It is well recognized by practitioners and medical educators that the use of complementary and alternative therapies in the United States has continually increased over recent decades. Epidemiologic studies have shown that the lifetime prevalence of CAM therapy use in the United States has increased steadily since the 1950s (Kessler et al., 2001). In a UNM study assessing the frequency of CAM use, 90.2% of the 612 participants reported using CAM to treat their diagnosis of arthritis (Herman et al., 2004). A recent study of patients in primary care settings in West Texas reported that over half of the study participants used some type of CAM, and, of note in our current economic recession, CAM use was inversely correlated with the ability to get

a timely appointment with a healthcare provider, or to access healthcare resources (Zhang, 2008).

As many as 70% of patients do not reveal their use of herbal remedies to their allopathic health care providers (Miller, 1998). Frenkel showed that patients tended to anticipate a negative response from the physician if they were to reveal their CAM use, and they often sensed that their physician was not interested in or able to contribute useful information about CAM. This anticipated negative response and perceived lack of knowledge leads patients to believe that their use of CAM is not relevant to the conventional treatment they receive, and causes them not to voluntarily disclose this aspect of their medical history to their physician (Frenkel, 2001).

The withholding of information about CAM usage from allopathic medical providers can be deleterious to patient health. Reports of adverse reactions to CAM have more than doubled in three years (Bulletin of the World Health Organization, 2004). This statistic underscores the need for physicians to be knowledgeable about CAM practices, as they are not only widespread, but can have a serious impact on the overall health of their patient population. Various biological compounds used in CAM therapies can cause abnormal lab results or potentially interfere with the metabolism of medications. When patients fail to report their use of such compounds, it can lead practitioners to misinterpret test results or misjudge the efficacy of a particular therapy. An example of the impact of this confusion is apparent in mainstream medical struggles with the popularity of traditional Chinese herbs among cancer patients. Chiu et al (2008) have gone so far as to publish specific guidelines in an oncology journal to enable those

who work with cancer patients to anticipate potential drug interactions and to counsel patients appropriately.

While undoubtedly helpful, this publication is an example of addressing a problem in retrospect that needs to be faced head-on. While it is not realistic to expect physicians to become experts on all aspects of CAM, formal introduction to a variety of CAM therapies during medical school could help physicians-in-training to be aware of potential areas of overlap between CAM and other medical modalities and to anticipate problems that could arise. As patients more frequently use CAM and consult CAM practitioners for disease prevention, treatment, and health promotion, there is a strong need to develop proper educational and training modules for clinicians.

As long as there remains a lack of formal medical training in CAM at either the undergraduate or professional level, physicians are left to their own resources in order to support such a dialogue with patients. Many doctors acknowledge they are not confident to discuss CAM with their patients, and that they feel the need for further education and training in this field (Fearon, 2002). Overall, doctors are at the same time accepting of their patients' use of CAM, would like to participate in CAM continuing education, and support for medical school education in CAM (Hall, 2003). 61% of physicians in one survey reported discouraging CAM therapies because they are not knowledgeable enough about the safety or efficacy of CAM treatments, but 81% of the same group claimed to want more CAM education (Milden, 2004).

Currently, scant literature exists exploring the effectiveness of CAM education in a medical school setting. Indeed, it appears that traditional medical training has the effect of increasing students' skepticism about CAM practices, and decreases their interest in

learning more about CAM modalities (Furnham, 2003). However, after integrating evidence-based information on CAM treatments into a pharmacy school curriculum via lectures and clinical case studies, the faculty at the school found that students' self-assessed and actual knowledge about CAM practices increased, that the training did not interfere with learning the material in the traditional pharmacy curriculum, and that students wished they had begun receiving such training earlier in their schooling (Tiralongo, 2008). The success of this program suggests that science-based medical training and CAM education need not be antagonistic. This suggestion is also supported by medical student response to a curriculum at Texas A&M University integrating evidence-based medicine training and information about CAM. 98% of students reported that training in CAM would be useful in their future work, and there was a significant increase in the students' view of the appropriateness of integrating CAM training into the traditional medical school curriculum (Forjuoh, 2003).

In 1994, Borkan et al. demonstrated that physicians who use CAM for themselves or their families had a higher rate of patient referrals for CAM therapy, demonstrating that experience with CAM may increase familiarity about and comfort with its usage among doctors. Based on this information, our research project was designed to explore whether an experience with a CAM modality would similarly impact the attitudes of medical students with regard to feeling more comfortable discussing CAM therapies with patients, and to explore an experience-based avenue of CAM education among medical professionals in training. The specific modality we explored was Mindfulness-Based Stress Reduction (MBSR), a method pioneered by Dr. Jon Kabat-Zinn that has been reported to be successful in the treatment of chronic pain, anxiety and panic, and other

medical diagnoses (Kabat-Zinn, 1993). Our focus was not to look at the efficacy of this method as a treatment modality, but instead to explore the impact of an experience in MBSR on medical student attitudes, beliefs, and comfort level with CAM as a means of assessing the effectiveness of experiential education in CAM as an addition to the medical school curriculum.

Methods

Our subjects were students enrolled and in good academic standing at the University of New Mexico pursuing a doctorate of medicine degree. No other requirements were necessary for enrollment. Subjects were recruited through announcements made during breaks between lectures to first and second year medical students. Subjects signed up at that time to receive more information about the project. All students who signed up received an email detailing the time, place, and content of the MBSR class. 18 students committed to attend. Subjects were not offered any monetary compensation for their participation, nor were there any penalties for not participating.

The MBSR session was conducted at the Center for Life, an off-site integrative medicine facility, associated with the University of New Mexico. On the night of the session, students were given a consent form and informed of all potential risks and benefits. All 18 subjects consented to participate and signed forms at that time. They were then administered a pre-class survey (Appendix A) using a Likert scale to report their beliefs and attitudes about CAM. The survey had been approved by the UNM

HRRC and was previously validated in a study of opinions and attitudes of physicians in the community.

The class was lead by a practitioner formally trained in MBSR and used techniques typical to classes in MBSR. Although MBSR is traditionally conducted in a 6-8 week session, with 2-3 hours a week, due to time constraints with medical student schedules, we developed a brief, one-time 3 hour session consisting of basic principles and exercises of MBSR. After the class, students were asked to fill out the same survey. No identifying information was requested or listed on either form. The pre- and post-surveys were linked by a randomly assigned number and the letter “a” or “b” to designate pre- and post-surveys, respectively. Subjects understood they were free to decline to fill out either survey, and to leave at any time during the class if they no longer wished to participate.

Two-sided paired t-tests were used to compare pre- and post-treatment changes in scores on a Likert scale measuring perceived knowledge and attitude about the use of CAM therapy.

Results

A total of 18 students participated in the study. Twenty-two percent were male, and 78% were female. The average age was 28 years old. The group was composed of 67% pre-clinical (1st and 2nd year) students, and 33% were 3rd and 4th year students.

Table 1

| Previously experienced CAM modality | N | % |
|--|----------|----------|
| Acupuncture | 6 | 33 |
| Aromatherapy | 9 | 50 |
| Ayurveda | 1 | 5.6 |
| Biofeedback | 1 | 5.6 |

| | | |
|-----------------------------|----|------|
| Chiropractic | 7 | 39 |
| Curanderismo | 1 | 5.6 |
| Electromagnetic | 2 | 11 |
| Healing Touch | 2 | 11 |
| Herbal/Botanical Medicine | 8 | 44 |
| Homeopathy | 5 | 28 |
| Hypnotherapy/Guided Imagery | 3 | 16.7 |
| Massage | 15 | 83 |
| Meditation | 11 | 61 |
| Native American Healing | 1 | 5.6 |
| Prayer/Spiritual Direction | 5 | 28 |
| Stress Reduction Techniques | 6 | 33 |
| Tai Chi | 4 | 22 |
| Yoga | 15 | 83 |

All 18 of the participants had prior experience of at least one CAM modality, with 89% of participants having experience with 3 or more CAM modalities.

Table 2
Questionnaire results

| Variable | N | Mean (pre) | Mean (post) | Std Dev | P value |
|-----------------|----------|-------------------|--------------------|----------------|----------------|
| Item 3 | 13 | 3.78 | 4.08 | 0.8771 | 0.0470* |
| Item 5 | 16 | 1.76 | 2.63 | 0.8837 | 0.0062* |
| Item 6 | 18 | 3.5 | 4.17 | 1.1882 | 0.0293* |
| Item 7 | 18 | 1.89 | 1.72 | 0.7859 | 0.3808 |
| Item 8 | 18 | 1.78 | 1.33 | 0.5113 | 0.0018* |
| Item 9 | 18 | 3.94 | 4.56 | 1.5005 | 0.1021 |
| Item 10 | 18 | 4.33 | 4.72 | 0.6978 | 0.0302* |
| Item 11 | 18 | 4.11 | 4.44 | 0.7670 | 0.0827 |
| Item 12 | 18 | 2.83 | 3.61 | 1.1144 | 0.0087* |
| Item 13 | 18 | 4.33 | 4.78 | 0.7838 | 0.0278* |

* p-value is significant, <0.05

Discussion

The results of our study suggest that experiential CAM education significantly changes students' attitudes about and increases their interest in Integrative Medicine. As can be seen in Table 2, seven of the ten survey items achieved statistical significance.

Students' responses indicated that their perceived knowledge of MBSR increased significantly after the session. Belief in scientific evidence for integrative therapies also increased significantly. Presumably, both of these changes were the direct result of having participated in an MBSR class, a portion of which includes discussing studies of the health benefits of stress reduction.

There was also a significant decrease in level of agreement with the statement that integrative therapies are too controversial to be discussed by health care professionals with their patients. Our assumption is that participation in the MBSR class and subsequent increase in knowledge about the content, methods, and scientific rationale behind MBSR changed students' perceptions of their controversial nature. Although students already expressed agreement with the statement that health care professionals should know about interactions between integrative therapies and conventional medications, participants showed a significant increase in agreement with that belief, perhaps reflecting a change in students' comfort levels in discussing MBSR methods.

Familiarity with how to gain access to reliable information about integrative medicine was also reported to be significantly increased. Our conclusion is that this increased because the class was held off-campus at an Integrative Medicine facility, offering a myriad of CAM modalities, affiliated with the University. Prior to participating in the class, students may not have been aware of the nature, location, or perhaps even the existence of this center. After attending the class, students can now refer themselves or their patients to the center for more information on treatment modalities offered there.

Lastly, student support for the establishment of an integrative medicine education curriculum at UNM School of Medicine significantly increased after the experience,

indicating that not only did students feel that their knowledge increased and their attitudes changed, but that they valued the experience enough that they would like to see other students have the same opportunity.

These results indicate that experiential CAM education can be a valuable addition to traditional medical education, and are encouraging in support of the implementation of experiential CAM education in the medical school curriculum. As previously demonstrated, with increasing rates of CAM use, it is imperative that medical professionals keep an open dialogue with patients about CAM in order to deliver holistic, quality, patient-centered care and reduce avoidable adverse effects. Thus, if experiential CAM education improves students' attitudes, knowledge, and comfort in talking with patients about CAM, then medical schools should take the opportunity to provide these fundamental lessons early in the training period of future physicians.

An important conclusion we drew from our results was that with the formal implementation of experiential CAM education into the curriculum, the direct interface between students and CAM providers would translate into a heightened awareness of CAM resources in the community. It could also foster relationships with CAM providers, allowing later coordination of care.

As we continue to see an increase in CAM use amongst the general population, it seems that the investment in experiential education would be cost-effective, as our results suggest its efficacy. Our model of a group experiential required a nominal honorarium for the single instructor. CAM community providers may be willing to negotiate their services to groups of medical students in exchange for the implied influence on attitude changes and increased interest in learning more about integrative medicine. In the end,

our hope is that it would provide physicians-in-training with the necessary tools to nurture an open mind and dialogue with patients about CAM use. Furthermore, it could encourage more thoughtful referrals and integration of CAM modalities into conventional treatment plans. This change would be in the best interest of patients and physicians alike, as patient use of CAM seems unlikely to decrease any time soon. Our nation is widely regarded to be in a healthcare crisis, with costs rising at the same time that accessibility to care is steeply decreasing. Earlier studies have shown a correlation between CAM use and lack of access to healthcare resources. If this is the case, it would behoove conventional providers to know more about CAM, as more and more patients are likely to be using it as access becomes more limited.

Limitations

Although the findings of this study are encouraging of experiential CAM education, there are many limitations that need to be addressed in future studies of this kind.

Analysis of the demographics of our participants shows an overrepresentation of students in their preclinical years as opposed to those in their 3rd and 4th years of medical school. As discussed in our introduction, a previous study reported that medical students are more open to CAM in the earlier years of the medical education, and express less interest and greater skepticism by their later years. Thus, our results could have been skewed by a larger number of preclinical students, as these students appear to be naturally more open-minded about CAM methods. However, one could argue that this difference is the result of preclinical students having not been exposed to the negative

attitudes towards CAM older students encounter during clinical rotations, and that this result is less a shortcoming of our study than an argument in favor of integrating CAM education into the earlier parts of the medical school curriculum.

In order to reduce the likelihood of bias and coercion, we purposefully did not offer any compensation and ensured that participation would not be reflected in any way on the student's academic record. However, there is still self-selection bias since participants were volunteers, the majority of whom had already experienced a number of CAM modalities at their own motivation prior to study participation. In addition, we cannot exclude the possibility that participants may have intentionally or unintentionally altered their responses in order to please the investigators, with the intent of helping senior students with fulfilling their research requirement.

There was also a preponderance of females in our study population. Interestingly, earlier studies of CAM use amongst patient populations have demonstrated a correlation between CAM use and female gender. It may be that this correlation also holds true amongst physicians-in-training. Thus, given the voluntary nature of our recruitment process, this apparent association may have caused more females to be interested and thus willing to volunteer. We can only speculate about the effect the large number of female study participants may have had on our results. However, it seems that if more female patients use CAM methods, females may have an overall more positive regard for CAM in general. It may be that having more female participants led to more endorsement of the CAM experiential than would have been the case with a larger number of male participants.

In the future, it would be prudent to design a study with a broadened base of students and eliminate self-selection bias by offering incentives for otherwise less-interested students to participate. It will also be important to test other CAM modalities in the experiential design, in order to see if the results gained from an experiential with MBSR are able to be generalized to these other modalities, including ones more relevant to regional cultures.

An additional limitation in study design is the lack of a control arm. The assumption made is that didactic CAM education is the gold standard in today's medical school curriculum. However, without a control group, we cannot definitively claim that experiential CAM education is superior to didactic education.

Conclusion

Our data supports that even with an abbreviated version of MBSR, students still showed a significant improvement in attitudes and beliefs about CAM. One can then deduce that a full experiential would have even greater benefits to student attitudes of CAM.

Several CAM modalities, MBSR included, carry very little risk of harm for their participants. Thus, we see few reasons to wait on a thorough study of these modalities in order to begin integrating experiential modules into medical school curricula. Indeed, this integration may be the only way in which we can truly study the effectiveness as a means of education. The design could be considered that of a feedback loop, with changes made to the curriculum as the result of ongoing study of its effectiveness. The cost would be

low and their would be little risk of harm, yet our study results indicate that students would gain knowledge not only of the modality they participated in, but of wider resources in the community for learning about CAM. Students could thus learn how to effectively counsel patients about CAM use, critically appraising the literature for the efficacy and liability risk of the chosen modality. Given the current state of healthcare in our nation, there is little to lose and, based on the results of our study, much to be gained from the establishment of an experiential CAM curriculum in medical school.

References

- [No authors listed]. New alternative medicine guide launched amidst increasing reports of adverse reactions. *Bulletin of World Health Organization*. 2004 Aug;82(8):635-6.
- Borkan J, Neher JO, Anson O, Smoker B. Referrals for alternative therapies. *Journal of Family Practice*. 1994; 39(6):545-550.
- Chiu J, Yau T, Epstein RJ. "Complications of Traditional Chinese/Herbal Medicines(TCM)- a Guide for Perplexed Oncologists and Other Cancer Caregivers." *Support Care Cancer* 2008 Nov 14 (EPub ahead of print)
- Fearon J. "Preparing teachers of CAM therapies in conventional healthcare settings." *Altern Ther Health Med*. 2002 Nov-Dec;8(6):32-3
- Forjuoh SN, Rascoe TG, Symm B, Edwards JC. "Teaching Medical Students Complimentary and Alternative Medicine Using Evidence-Based Principles." *J Altern Complement Med* 2003 Jun; 9(3):429-39.
- Frenkel M, Arye EB. "The growing need to teach about complementary and alternative medicine: questions and challenges." *Academic Medicine*, 2001; 76(3):251-254.
- Furnham A, McGill C. "Medical Students Attitudes about Complementary and Alternative Medicine." *J Altern Complement Med* 2003 Apr; 9(2): 275-84.

Hall J, Bulik R, Sierpina V. "Community preceptors' attitudes toward and practices of complementary and alternative medicine: a Texas survey." *Tex Med*. 2003 May;99(5):50-3.

Herman CJ, Allen P, Hunt WC, Prasad A, Brady TJ. Use of complementary therapies among primary care clinic patients with arthritis. *Prev Chronic Dis*. 2004 Oct;1(4):A12.

Kabat-Zinn, J. Mindfulness Meditation: Health Benefits of an Ancient Buddhist Practice. In Goleman, D. and Gurin, J. (eds) Mind/Body Medicine, Consumer Reports Books, Yonkers, NY, 1993.

Kessler RC, Davis RB, Foster DF, VanRompay MI, Walters EE, Wilkey SA, Kaptchuk TJ, Eisenberg DM. Long-term trends in the use of complementary and alternative medical therapies in the United States. *Annals of Internal Medicine*. 2001 Aug; 135(4):262-268.

Mackenzie G, Parkinson M, Lakhani A, Pannekoek H. Issues that influence patient/physician discussion of complementary therapies. *Patient Educ Couns*. 1999 Oct;38(2):155-9.

Milden, S, Stokols D. "Physicians' Attitudes and Practices Regarding Complementary and Alternative Medicine." *Behavioral Medicine*, Summer 2004; 30(2), 73-82.

Miller LG. Herbal medicinals: selected clinical considerations focusing on known or potential drug-herb interactions. *Archives of Internal Medicine*. 1998; 158(20):2200-2211.

Richardson J. "Integrating complementary therapies into health care education: a cautious approach." *J Clin Nurs*. 2001 Nov;10(6):793-8.

Zhang Y, Jones B, Ragain M, Spalding M, Mannschreck D, Young R. "Complementary and Alternative Medicine Use Among Primary Care Patients in West Texas." *Southern Medical Journal*, November 11, 2008 (EPub ahead of print)