



# Preaching to the Choir: Comparing Health Professionals Who Enroll in Mind–Body Skills Versus Herbs and Dietary Supplements Training?

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## Abstract

**Background.** Observational studies evaluating elective training programs may be biased if learners who enroll differ from nonenrollees. To assess self-selection bias, we compared participants who enrolled in 2 different online courses in complementary and alternative medical therapies. **Methods.** Participants were recruited from entering classes in medicine, nursing, social work, and dietetics, and residencies in family medicine and pediatrics. The 2 electives were (a) herbs and dietary supplements and (b) mind–body skills training. Participants completed standardized questionnaires before training. **Results.** The 218 participants had an average age of 28 years; 76% were trainees. There were no significant differences between enrollees in mind–body skills and herbs and dietary supplements with regard to age, gender, stress levels, mind–body training or practice, mindfulness, empathy, compassion, or resilience. **Conclusions.** Those who enroll in mind–body skills are not measurably different than those who enroll in herbs and dietary supplements. There is no evidence of self-selection bias or “preaching to the choir.”

## Keywords

education, integrative, complementary, alternative, compassion, mindfulness, resilience, stress, empathy

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## Introduction

Training in integrative medicine is offered at an increasing number of academic health centers. However, most of this training is offered as an elective, which means that those who enroll may differ from nonenrollees.<sup>1–6</sup> The core of most integrative medicine electives has been training in mind–body skills, and often includes a focus on relationship-based care, fostering qualities and practices such as empathy, compassion, self-care, and resilience.<sup>7–10</sup> Training in other topics, such as the history, evidence, safety, cost, and legal issues related to use of herbs and supplements, massage, and chiropractic, is also available in many institutions and online, but has become somewhat less popular than the focus on mind–body skills.

Mindfulness training has become more popular as evidence mounts that it can improve health professionals’ mindfulness and resilience, decrease burnout, and improve patient care.<sup>11–13</sup> Mindfulness has been defined as paying attention in a particular way, on purpose, to the present moment, nonjudgmentally.<sup>14,15</sup> Mindfulness is correlated with physician resilience, self-compassion, and confidence in providing calm, compassionate care and negatively associated with burnout and stress.<sup>16</sup>

Furthermore, mindfulness training enhances resilience in nurses and other human services professionals over time.<sup>17,18</sup>

There is also increasing interest in training health professionals in self-compassion, empathy, and resilience as strategies to improve care and decrease burnout. Self-compassion includes the concept of mindfulness, self-kindness, and common humanity. It is distinct from self-esteem, self-pity, and self-indulgence in that it focuses on kindness toward self as a human being, not better or worse than others.<sup>19,20</sup> In an earlier study, we found that self-compassion was strongly positively associated with clinician resilience and confidence in providing calm, compassionate care.<sup>16</sup> Empathy has been defined as the ability to understand another person’s emotional state. The 7-item Empathic Concern Scale and the 7-item Perspective-Taking scale are widely used to measure empathy in health

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professionals.<sup>21-28</sup> Resilience is the concept of being able to bounce back from adversity<sup>29</sup>; it is inversely related to burnout.<sup>12,30,31</sup>

Self-selection for elective training may result in bias. In an earlier study, we found that prior to enrolling, medical trainees who enrolled in an elective on training in skills related to providing calm, compassionate care had higher levels of burnout and lower levels of confidence in their practice than their colleagues who did not enroll in the elective<sup>32,33</sup>; in common parlance, that study found that the elective was preaching to the “sinners” rather than the “choir,” that is, trainees correctly identified their need for additional training. This study has not been widely replicated, and there is a gap in understanding the extent of bias due to self-selection for elective training. Studies of elective training could be biased if those who enroll are more or less likely to benefit than nonenrollees; it could also limit the generalizability of findings from elective training as educators consider transforming elective to required components of the curriculum.

Our primary question for this study concerns whether an interprofessional curriculum on mind–body skills preferentially attracted trainees who already showed higher levels of mindfulness, compassion, and empathy than those who enrolled in another elective on herbs and dietary supplements. The null hypothesis is that trainees would have similar levels of mindfulness, compassion, empathy, and resilience regardless of whether they chose mind–body skills training or herbs and dietary supplements training.

## Methods

We tested this hypothesis in a cohort trial conducted between May 1 and July 31, 2014, in a large Midwestern academic health center in which we offered a choice of online training.

### Participants

Participants included trainees and practicing professionals in nursing, medicine, dietetics, and social work. Participants were eligible if they agreed to participate in a study evaluating new online curriculum in integrative medicine. Recruitment occurred by email. Our goal was to recruit 200 participants within the 3 months prior to the start of the 2014 fall semester.

The administrative offices of the Deans of the Colleges of Medicine, Social Work, and Nursing, the Director of the PhD Program in Human Nutrition and Dietetics, as well as the Program Directors for Pediatrics, Family Medicine, and Palliative Care at Ohio State University sent emails to incoming graduate students, residents, and fellows in May and June of 2014 inviting them to participate in the project with a link to the pretraining survey. The last page of the survey included a link to register for a free online course on herbs and dietary supplements or mind–body skills training for resilience, effectiveness, and mindfulness.

Approximately 450 individuals received a direct email inviting them to participate; we did not count email “bounces” or returns, though there were a substantial number since many trainees were moving from other institutions. A few faculty and staff who heard about the project also asked to participate so they could review the

curriculum and better advise trainees. Participants who completed the survey were eligible to receive \$10 for completion. Identifying information was removed prior to analysis.

### Demographic Measures

Demographic items used to describe the survey sample included age, gender, and profession. We also asked participants which (if any) of 12 common health conditions (including a space for “other”) they had experienced in the past year. We used the sum of total health problems as a proxy for general health status. We also assessed perceived stress levels using Cohen’s 10-item Perceived Stress Scale<sup>34</sup> because students with higher stress levels might prefer training in mind–body skills.

### Mind–Body Training and Practice

One question asked about training in mind–body practices (“In which of the following have you had formal training in the past 3 years?”) Ten practices (including “other”) were listed; and answers were scored as the number of practices (0 to 10) in which the participant had received formal training in the past 3 years.

Another question asked about frequency of mind–body practice; answers included 0 (never), 1 (once or twice a month), 2 (2-3 times monthly), 3 (weekly), 4 (3-5 times weekly), and 5 (6-7 times weekly).

### Qualities Thought to Be Related to Mind–Body Training and Practice

*Mindfulness* was assessed using the 10-item Cognitive and Affective Mindfulness Scale–Revised,<sup>35</sup> which has a 4-point summative rating scale (1 = rarely or never at all, 5 = almost always), and 1 reverse-coded item, with a typical total mean score of  $31 \pm 5$ .

*Compassion* was measured using the 5-item Santa Clara Brief Compassion Scale, which uses a 7-point summative rating scale (1 = not at all true of me and 7 = very true of me), and has a typical mean score of 30, with a range from 9 to 35.<sup>36</sup>

*Self-compassion* was assessed using the 12-item Neff’s Self-Compassion Scale, which has 6 reverse-scored items rated on a 0 = never to 5 = always scale and a mean score among undergraduate students of  $36 \pm 7$  and a median of 37.<sup>19</sup>

*Empathy* was measured with the 7-item Empathic Concern Scale and the 7-item Perspective-Taking scale.<sup>21-28</sup> Both scales use a 5-point summative rating scale where 0 = does not describe me well and 4 = describes me well; both the Empathic Concern Scale and Perspective-Taking scale have normative median scores of 24. We chose these measures rather than the Jefferson Scale of Physician Empathy because our participants included diverse health professionals, not just physicians.<sup>23</sup>

*Resilience* was assessed using Smith’s 6-item Brief Resilience Scale, in which 3 items are reverse coded.<sup>37</sup>

Surveys were completed online using SurveyMonkey. Data were de-identified and cleaned by a research assistant blind to the study question, exported into a spreadsheet and exported into Statistical Analysis System (SAS 9.2) for scoring. Univariate analysis was employed to evaluate the distribution of each variable including demographic variables and then questionnaire scores using simple percentages, means, and standard deviations. Two-tailed *t* tests were used to compare continuous variables such as age, and analysis of variance was used to compare distributions of nominal variables such as

**Table 1.** Participant Description.

Characteristic	MBS (N = 117)	HDS (N = 23)	P
Age	29.1 ± 9.6	25.8 ± 6.2	.1
Gender (% female)	(n = 91) 78%	(n = 15) 65%	.2
Profession			.04
Dietetics	18	2	
MD	40	9	
RN	14	5	
Social work	37	3	
Other (DDS, PT, OT, optometry, psychology, other)	8	4	
Health problems	3.2 ± 2	2.9 ± 2.3	.5
Perceived Stress Scale	17.8 ± 5.5	17.7 ± 4.8	.9
Training in mind–body practices in past 5 years	0.9 ± 1.5	0.4 ± 0.78	.1
Frequency of practice (0 = never; 1 = once or twice monthly; 2 = 2-3 times per month; 3 = once or twice a week; 4 = 3-5 times weekly; 5 = 6-7 times per week)	1.3 ± 1.3	0.9 ± 1.3	.2

Abbreviations: MBS, mind–body skills; HDS, herbs and dietary supplements; MD, doctor of medicine; RN, registered nurse; DDS, dietetics; PT, physical therapy; OT, occupational therapy.

profession. The nonnormally distributed variables, such as frequency of mind–body practice, were compared using Wilcoxon rank sum test.

This study was approved by the Ohio States University Office of Research Institutional Review Board (2013B0611).

## Results

### Participant Demographics

The recruitment strategy succeeded in recruiting 218 individuals with an average age of 28 years; 76% of whom were trainees (Table 1). Most (73%) were female, and all targeted professions (dietetics, medicine, nursing, and social work) were represented with more than 10 participants. In addition, there were 26 participants from other professions including dentistry, physical and occupational therapy, psychology, and optometry. Of the 218 survey respondents, 117 enrolled in mind–body skills, 23 enrolled in herbs and dietary supplements, and the remainder enrolled in both (n = 14), neither (n = 38), or provided insufficient identifying information to link their responses to enrollment (n = 26). Because the study hypotheses concerned a comparison of those enrolled in herbs and dietary supplements versus mind–body skills, subsequent analyses compare those enrolled in herbs and dietary supplements alone to those enrolled in mind–body skills alone.

There were no significant differences in enrollment for herbs and dietary supplements versus mind–body skills by age, trainee status, or gender (Table 1). There was a small but statistically significant difference by profession. Dietitians and social workers were more likely to enroll in mind–body skills than other health professionals,  $P = .04$  for differences between

**Table 2.** Differences Between Mind–Body Skills and Herbs and Dietary Supplements Registrants for Mindfulness, Empathy, Compassion, and Resilience.

Characteristic	MBS (N = 117)	HDS (N = 23)	P
Mindfulness (CAMS-R)	27.1 ± 5.4	27.6 ± 4.8	.7
Perspective-Taking	23.4 ± 4.3	23.1 ± 3.7	.7
Empathic Concern	24 ± 3.8	22.4 ± 3.5	.1
Compassion (SCBCS)	29 ± 4.8	27.8 ± 5.3	.3
Self-compassion	37.1 ± 7.4	37.5 ± 6.1	.8
Resilience (BRS) item	21 ± 4.8	20.6 ± 4.5	.7

Abbreviations: CAMS-R, Cognitive and Affective Mindfulness Scale–Revised; SCBCS, Santa Clara Brief Compassion Scale; BRS, Brief Resilience Scale.

professions. This difference disappeared after correcting for multiple comparisons.

Although the participants were mostly young health professionals in training, they reported an average of 3 health problems (such as allergies, headaches, dysmenorrhea, and back pain), and moderately high levels of perceived stress compared with population normative values of 12 to 14 on Cohen's scale.<sup>38</sup> There were no differences in the number of health problems or perceived stress between those enrolled in mind–body skills and those enrolled in herbs and dietary supplements.

### Training and Practice in Mind–Body Skills (Table 1)

Most (52%) registrants reported no training in mind–body skills in the previous 3 years, and of those who did, the most common training was for yoga. The mean number of mind–body trainings was similar for those enrolled in mind–body skills and those who enrolled in herbs and dietary supplements. The frequency of practicing mind–body skills was also similar for those who enrolled in mind–body skills compared with those who enrolled in herbs and dietary supplements; most practiced “never.”

### Mindfulness, Compassion, and Resilience (Table 2)

There were no clinically meaningful or statistically significant differences between those who enrolled in mind–body skills compared with those who enrolled in herbs and dietary supplements in terms of mindfulness, empathy, compassion for others, self-compassion, or resilience.

## Discussion

To our knowledge, this is the first study comparing the qualities of trainees and health professionals who chose to enroll in an elective mind–body skills training program to those who enrolled in herbs and dietary supplements training.<sup>39</sup> Overall, the null hypothesis was supported. Participants who chose mind–body skills training were similar to those who chose herbs and dietary supplements in terms of age, gender, and health status. Participants in both courses were also similar in

terms of stress, prior training and practice in mind–body skills, and levels of mindfulness, empathy, compassion, and resilience measured on standardized instruments. The similarities between groups suggest that educators can be reassured that those who enroll in electives are neither the “choir” nor the “sinners,” and results of educational cohort evaluations may be generalizable.

This study has unique strengths. For example, the study included multiple diverse types of health professionals; although the group was mostly trainees, participants included dietitians, nurses, physicians, and social workers in training as well as residents, fellows, and practitioners. Most previous studies have focused on a single professional group such as physicians, therapists, or nurses.<sup>11,40–45</sup> The current approach strengthens the generalizability of the findings and supports the idea that interprofessional assessment and training, particularly online, is feasible.<sup>46</sup> It also paves the way for interprofessional comparisons of the effect of online training to determine whether the same training can offer similar benefits to different kinds of health professionals or whether some professionals benefit more than others. A second strength is the inclusion of a comparison or alternative elective training opportunity. Studies that compare participants to a waiting group may encounter negativity or apathy among those forced to wait, resulting in poorer outcomes in those assigned to waiting list than active interventions<sup>47,48</sup>; similarly, studies that have no control group (education as usual) may suffer from bias due to the enthusiasm of those who enroll in extra, noncredit elective training and attention.

We were somewhat surprised at the high average number of health problems and the high stress levels reported by those who enrolled in both courses. Participants reported an average of 3 health problems and perceived stress scores substantially higher than normative values in the population. In a study of entering dental, medical, nursing, and mental health students, Birks reported perceived stress levels ranging from 14.5 to 16.5.<sup>49</sup> Our participants' stress levels of nearly 18 were also higher than levels reported for medical students,<sup>8</sup> but lower than stress scores for pharmacy students<sup>50</sup> and social workers.<sup>51</sup> Although the stress levels in those who enrolled in mind–body skills were no higher on average than those who enrolled in herbs and dietary supplements, academic leaders may wish to take extra measures to guard against further increases in trainees' stress to reduce the risk of burnout among young health professionals.

The study addresses an important gap in our understanding of who enrolls in elective training in integrative medicine and how those who enroll in different kinds of training compare to nonenrollees. Typically, randomized controlled trial designs are used to minimize the risk of bias between groups of participants that differ in important ways at baseline (threats to internal validity); however, randomized controlled trials may suffer from risks to external validity from failing to recruit the target number of participants because many people have strong preferences about which kind of intervention or training they prefer and decline to be randomized.<sup>52,53</sup> The fact that in our

sample the 2 groups were so similar suggests that it may be possible to conduct preference trials with minimal risk of bias and with the advantage of recruiting those who have strong preferences about the type of training they prefer.<sup>54</sup>

As a cross-sectional study, this study had several limitations. It was conducted at one academic health center and recruited a high proportion of female trainees. Results might not generalize to community settings with more experienced, older, and/or male clinicians. The questionnaire used many standardized instruments, but it did not assess the reasons why participants enrolled in either mind–body skills or herbs and dietary supplements. We have insufficient data to speculate on whether these participants were particularly highly motivated by an intrinsic desire to learn, or acutely aware of patients' interest in and use of dietary supplements, or fearful of rumors regarding burnout among health professionals, or influenced by media reports about the importance of mindfulness, or other factors. Standardized instruments were used to measure mindfulness, empathy, compassion, and resilience, but they might not be sensitive enough to detect subtle differences between groups. The participants were primed by the questions themselves to choose the mind–body training and a majority did so; setting expectations differently might have changed both responses and enrollment patterns. A large percentage of the survey respondents failed to provide enough identifying information to link them, or registered for neither course, or registered for both courses; future studies will need to provide clearer directions and fail-safe mechanisms in the Web-survey design to optimize opportunities for tracking and categorizing respondents.

## Conclusion

These results have important implications for educators offering novel online, elective training programs on integrative health topics. Educators need not worry that they are “preaching to the choir” or “preaching to the sinners” when offering online training. It appears that those who choose mind–body skills training are neither more nor less in need of it than those who choose training on other topics; offering alternative “control group” training is feasible. Furthermore, if they do not threaten internal validity, preference trials offer advantages over randomized controlled trials by improving recruitment of diverse participants more representative of the external world.

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## Author Contributions

KK developed the study questionnaire, prepared the institutional review documents for approval, drafted the article, conducted initial



data analysis, and coordinated the study team that recruited subjects. MM conducted the definitive data analysis and participated in revising the article. JL helped recruit subjects and participated in revising the final article.

### Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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### Ethical Approval

This study was approved by the Ohio States University Office of Research Institutional Review Board (2013B0611).

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