Research

Complementary and Alternative Medicine Professions Students’ Perceptions about Interdisciplinary Collaboration

Cheryl Hawk, DC, PhD, CHES1*, Harrison Ndetan, MSc, MPH, DrPH2, Anupama Kizhakkeveettil, BAMS (Ayurveda), MAOM, L.Ac.3, Jerrilyn A. Cambron, LMT, DC, MPH, PhD4, Nick Buratovich, NMD5, Nancy A. Scarlett, ND6, Peggy Smith-Barbaro, PhD7.

Address: 1Director of Clinical Research, Logan College of Chiropractic, Chesterfield, MO, USA, 2Assistant Professor of Research, Parker Research Institute, Dallas, TX, USA, 3Assistant Professor, Southern California University of Health Sciences, Whittier, CA, USA, 4Professor, Department of Research, National University of Health Sciences, Lombard, IL, USA, 5Professor and Chair, Department of Physical Medicine, Southwest College of Naturopathic Medicine, Tempe, AZ, USA, 6Associate Professor of Naturopathic Medicine, National College of Natural Medicine, Portland, OR, USA, 7Associate Professor, University of North Texas Health Sciences Center, Fort Worth, TX, USA.

E-mail: Cheryl Hawk, DC, PhD, CHES – cheryl.hawk@logan.edu

*Corresponding author

Topics in Integrative Health Care 2011, Vol. 3(2) ID: 3.2003

Published on June 30, 2012 | Link to Document on the Web

Abstract

Objective: To assess the feasibility of collecting data from multiple institutions and to make a preliminary comparison of the attitudes toward interdisciplinary collaboration of complementary and alternative health professions and mainstream health professions students.

Methods: A cross-sectional survey was conducted in 5 health professions training institutions, 4 of which train multiple health professions. Students were approximately midway in their course of training. Attitudes were assessed by means of the 18-item Interdisciplinary Education Perception Scale (IEPS), which measures 4 attitudinal factors (competence and autonomy, perception of need for and actual cooperation, and understanding others’ value) using a 6-point Likert scale, with a total score representing the sum of the factor scores. The survey was administered in class in 4 institutions and electronically in one. An analysis of variance
ANOVA), with a post-hoc Scheffe test for multiple comparisons, was used to compare mean total IEPS scores for students in each profession.

**Results:** The study was completed in 2012 with 277 students from the following professions: acupuncture/Oriental medicine, chiropractic, massage, naturopathic medicine, and physical therapy. The response rate for in-class administration was 78% but 17% for online administration. Physical therapy students had statistically significantly higher total scores than all the CAM professions except massage therapy.

**Conclusion:** The results suggest that further exploration of possible differences in attitude between CAM and convention health professions may be warranted, but will require significant efforts to make it feasible.

**Introduction**

The report by the Institute of Medicine on integrative care emphasizes the importance of integration of care across disciplines, caregivers and institutions. Integrative care has even been mentioned in the Patient Protection and Affordable Care Act of 2010, where it was considered to be an important part of the future U.S. health care system. One approach to facilitating the integration of health care across disciplines is to increase the awareness of the role of other professions during health professions training. In fact, interprofessional collaboration has been found to be so important that the Interprofessional Education Collaborative published a set of core competencies in 2011, based on an extensive literature review. However, this report only includes conventional health professions such as medicine, nursing and dentistry. These professions frequently house their training programs within the same institutions and health care settings, which may facilitate interdisciplinary experiences. However, just as complementary and alternative medicine (CAM) providers have traditionally practiced independently from conventional providers, CAM training institutions have evolved independently from conventional health professions training institutions. Therefore, it seems likely that CAM students’ perceptions of interdisciplinary cooperation and collaboration might be different from those of conventional health professions students.

The attitudes of students of conventional health professions have been assessed using the “Interdisciplinary Education Perception Scale”. It has also been used to compare chiropractic students’ attitudes to those of conventional health professions students, but no other CAM professions were included. Thus in 2011, we designed a study to compare the attitudes of students of the most commonly used CAM professions to those of students of a sample of conventional health care professions. This project represents the first step toward the larger study by assessing the feasibility of collecting data across the institutions who volunteered to participate, both CAM and conventional, and making preliminary comparisons among the professions represented.
Methods

Design

This was a cross-sectional survey of health professions students’ attitudes toward interdisciplinary collaboration.

Sample Population

Participating institutions were selected to represent the most commonly used CAM professions as well as certain conventional health professions. Students were approximately midway in their course of training, in order to reflect the “institutional culture.” The institutions included were: 4 health sciences institutions (2 in the Southwest, 1 in the Pacific Northwest and 1 in the Midwest), 3 of which train several CAM professions and 1 which trains conventional health care professions, and 1 college of naturopathic medicine (training only Doctors of Naturopathic Medicine, ND). Of institutions in the U.S., our sample represented 2 of the 17 accredited chiropractic colleges, 3 of 5 accredited naturopathic medicine colleges, 2 of at least 135 massage schools, 2 of over 60 accredited acupuncture schools, and 1 of 29 accredited colleges of osteopathic medicine. Selection of students is described below under “Survey Administration.”

Survey Administration

For all but 1 institution, the survey was delivered in a class at which all or most of the students in the designated semester would be present. All students present in class on the day the survey was administered comprised the sample. Due to variations in schedules, one institution was not able to use this method and so the survey was conducted electronically, using SurveyMonkey, with email lists of all students in the designated semester comprising the sample.

Informed Consent

The Institutional Review Board (IRB) of each institution approved the project prior to administering the survey. It is noteworthy that this process took approximately 6 months, because of the number of institutions and the various requirements of their IRBs. The coinvestigator faculty member showed students in class a PowerPoint slide explaining the study and covering the other main features of informed consent, including the statement that participation was voluntary and anonymous, and that taking part or not taking part would not affect their course grade or relationship with the instructor. The electronic version included this statement at the beginning of the survey. Because the survey was anonymous, a signed consent was not obtained; completing the survey implied consent.

Questionnaire

The questionnaire asked the students’ age, sex and ethnicity, as well as institution, profession and semester. The Interdisciplinary Education Perception Scale (IEPS), the survey instrument, is an 18-item questionnaire using a 6-point Likert response scale from “strongly disagree” to “strongly agree;” higher numbers indicate stronger agreement.8 The factors and items are summarized in Table 1. Luecht et al
published data on the reliability and validity of the IEPS in their original study, along with normative data for certain allied health professions students.8

Table 1. Factor items of the Interdisciplinary Education Perception Scale.8,12

Respondents indicate their level of agreement about the characteristics of individuals in their profession, using a Likert scale of 1 (“strongly disagree”) to 6 (“strongly agree”).

Factor 1: Competence and Autonomy

- Well trained
- Demonstrate autonomy
- Respected by other professions
- Positive about goals and objectives
- Positive about their contributions and accomplishments
- Individuals in other professions think highly of them
- Trust each other’s professional judgment
- Extremely competent

Factor 2: Perceived Need for Cooperation

- Need to cooperate with other professions
- Must depend on other professions’ work

Factor 3: Perception of Actual Cooperation

- Able to work closely with other professions
- Willing to share information and resources with other professions
- Good relations with other professions
- Think highly of related professions
- Work well with each other

Factor 4: Understanding of Others’ Value

- Higher status than other professions
- Try to understand other professionals’ capabilities and contributions
- Other professions often seek their advice
Data Analysis

**Scoring of the IEPS.** The 18 items of the IEPS are categorized into 4 factors to represent the domains of 1) competence and autonomy, 2) perceived need for cooperation, 3) perception of actual cooperation, and 4) understanding others’ value. Factor scores are calculated via a weighting algorithm developed by Luecht et al. A single total score is calculated by summing the scores of the factors. For all factors and the total score, higher scores indicate more positive attitudes.

**Statistical Analysis.** Descriptive statistics were computed using SPSS v.20.0. Where more than one institution trained students of a given profession, we first compared total IEPS scores using an independent samples t-test (if 2 institutions were involved) or analysis of variance (ANOVA) (if 3 institutions were involved) to assess whether they were significantly different at the alpha=.05 level. If they did not differ significantly, this would allow the scores to be combined in the analysis. Because of the importance of health care professions keeping up with the trend in the general population toward increasing ethnic diversity, we further analyzed the variable on ethnicity. To do this, we collapsed the categories into “white” and “all other ethnicities.” Chi square (for categorical variables) and ANOVA (for age) tests were used to assess differences among professions. An ANOVA with a post-hoc Scheffe test for multiple comparisons was used to compare the mean total IEPS scores for each profession.

Results

Sample characteristics

**Response rates.** For the in-class administration, response rates varied by institution from 75%-100%. For the institution with online administration, a denominator could not be calculated for Doctor of Osteopathy (DO) and physician assistant (PA) students since only group email lists were available as a sampling frame. The response rate for physical therapy students was 17%. Because of the lack of a denominator and the small number of respondents (4 DO and 2 PA students), DO and PA surveys were excluded from the analysis. Only PT students were included representing conventional providers; this left a total of 304 surveys for all institutions combined.

**Usable surveys.** Some students did not complete the second page of the questionnaire or skipped a number of questions, so factor scores, which depend on summing groups of questions, could not be accurately computed. A total of 27 (9%) were thus eliminated from the analysis, for a total sample size of 277. One institution inadvertently cut off question 12 from the survey. Because eliminating their surveys due to this omission would have removed the institution from the study, we instead imputed a value to question 12 by taking the mean response from students of that health profession from other institutions.

**Demographics.** Table 2 summarizes the sample demographics. Students’ age, gender and race/ethnicity all varied significantly among professions. Acupuncture/Oriental medicine (AOM) students were the oldest (mean 33 years) and chiropractic the youngest (28 years). Women predominated in all professions except chiropractic (DC). AOM was the only profession in which white students (42%) were not in the majority, and the distribution of students according to white/all other was the most nearly equal for physical therapy (PT), with 56% white and 44% other races/ethnicities.
Table 2. Demographics of study population, by profession.¹

<table>
<thead>
<tr>
<th></th>
<th>AOM n=30</th>
<th>DC n=111</th>
<th>MT n=10</th>
<th>ND n=117</th>
<th>PT n=9</th>
<th>Total n=277</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age in years</td>
<td>33</td>
<td>28</td>
<td>29</td>
<td>31</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>missing</td>
<td>10</td>
<td>7</td>
<td>10</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>% of each sample</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>37</td>
<td>60</td>
<td>10</td>
<td>29</td>
<td>22</td>
<td>42</td>
</tr>
<tr>
<td>Women</td>
<td>60</td>
<td>38</td>
<td>90</td>
<td>69</td>
<td>78</td>
<td>58</td>
</tr>
<tr>
<td>missing</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Race and ethnicity*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>37</td>
<td>15</td>
<td>0</td>
<td>9</td>
<td>33</td>
<td>15</td>
</tr>
<tr>
<td>Black/African American</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Hispanic</td>
<td>7</td>
<td>5</td>
<td>20</td>
<td>3</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>White</td>
<td>37</td>
<td>66</td>
<td>70</td>
<td>68</td>
<td>56</td>
<td>63</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>11</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>missing</td>
<td>13</td>
<td>8</td>
<td>10</td>
<td>9</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Race, white and all others*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>42</td>
<td>72</td>
<td>78</td>
<td>74</td>
<td>56</td>
<td>69</td>
</tr>
<tr>
<td>All others</td>
<td>58</td>
<td>28</td>
<td>22</td>
<td>26</td>
<td>44</td>
<td>31</td>
</tr>
</tbody>
</table>

¹ Professions are in alphabetical order: AOM, acupuncture/Oriental medicine; DC, chiropractic; MT, massage therapy; ND, naturopathic medicine; PT, physical therapy.
* Statistically significant difference among professions (p=.05)

IEPS scores

Mean total IEPS scores for each profession did not vary significantly by institution. Figure 1 displays the mean factor scores for each health profession, along with the maximum possible score for each factor as a point of reference. When total scores for each profession were compared, PTs were significantly higher than all professions except MT (Table 3).
Figure 1. IEPS factor mean scores by profession.

![Graph showing factor mean scores by profession.]

* Maximum possible score for each factor.

DC, Doctor of Chiropractic; AOM, Acupuncture/Oriental Medicine; ND, Doctor of Naturopathic Medicine; MT, Massage Therapist; PT, Physical Therapist

Table 3. Comparison of total IEPS scores by profession.

<table>
<thead>
<tr>
<th>Profession</th>
<th>n</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chiropractic</td>
<td>111</td>
<td>237</td>
</tr>
<tr>
<td>Acupuncture/Oriental Medicine</td>
<td>30</td>
<td>242</td>
</tr>
<tr>
<td>Naturopathic Medicine</td>
<td>117</td>
<td>247</td>
</tr>
<tr>
<td>Massage Therapy</td>
<td>10</td>
<td>258</td>
</tr>
<tr>
<td>Physical Therapy¹</td>
<td>9</td>
<td>283</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>277</td>
<td><strong>244</strong></td>
</tr>
</tbody>
</table>

¹Physical Therapy score differs significantly from all professions (p = .02, Scheffe’s test) except Massage Therapy (p=.52).
Discussion

This study had limitations that must be taken into account when viewing the results. The institutions participating in this study may not be representative of other institutions training the health professions involved. Furthermore, we had some issues with data collection, in which a question was omitted, which may have impaired the representativeness of the responses, since we imputed a score for that question. More important, although the response rate for the online version of the survey, which involved PT students, was high for an online study (17%, vs 9% for a recent online survey using SurveyMonkey\textsuperscript{13}), it was much lower than that for the in-class survey. Furthermore, the PT sample size was very small (9 students), making it impossible to generalize to PT students in general. Comparing our results with those of an earlier study in Iowa which included PTs (n=37),\textsuperscript{11} our group’s factor and total scores (283 for our group vs 272 for the IA study) were all somewhat higher; it is possible that respondents in the current study tended to be those with greater interest in interdisciplinary cooperation. Concerning the CAM samples, the samples of MT and AOM students were also very small (10 and 30, respectively), even though their response rates were high. Furthermore, the IEPS scale itself only measures certain attitudes and, although it has been considered to be valid and reliable, its correlation with subsequent practice behavior has not been studied.\textsuperscript{8} Perhaps the most significant limitation for purposes of comparison, was the lack of a robust sample of conventional health care professions students.

Because of these limitations, we must be cautious in making any conclusions about the attitudes of students in the professions represented, based only on our results. However, the DC students’ scores—the only group besides PTs for which there are previously published data—are almost identical to previously published data (total score for our study, 237 vs 239 for the IA study).\textsuperscript{11} Thus there appears to be a tendency for DC students, and possibly AOM and ND students as well, to show less awareness of a need for interdisciplinary collaboration than do MT or PT students—however, this would need to be further explored in a more representative sample. It would be interesting to compare attitudes of students in stand-alone training institutions to those in institutions training multiple CAM professions. However, we were only able to do this with ND students (1 stand-alone ND college and 2 institutions which trained NDS and other professions) and found their IEPS responses were not significantly different, as described in the Results section. We did not include stand-alone DC, MT or AOM institutions.

In terms of the feasibility of conducting the planned larger study, and including students not only from other CAM institutions, but more students from conventional health professions in order to compare them, there are several issues we identified in this study. First, it appears that our selection of DC students showed responses consistent with those in a previous study, as mentioned above, so that sample may be representative. However, we cannot make any conclusions about the representativeness of the other student samples, and finding collaborative partners in additional institutions—particularly stand-alone institutions for MT and AOM, since our current sample only included students from these professions training in multi-disciplinary institutions—will be necessary. Second, multi-institutional IRB approvals in the institutions participating in this study appear to be very time-consuming, and planning timelines should consider building into the planning process at least 6 months for this to be accomplished. Third, in-class administration results in a much higher response rate, and should be used in the future, as opposed to online administration. Fourth, it appears that the survey administration could be improved by using 2 pages rather than a single double-sided page, since a number of students skipped the second page. Furthermore, it may be preferable to distribute hard copies from the central site to each institution, to avoid the type of error we experienced in this study, where one institution
inadvertently cut off a question. Finally, we found it very difficult to identify collaborative partners in conventional health professional training institutions, and this limitation must be addressed before embarking on a larger study.

Conclusion

The results suggest that further exploration of possible differences in attitude between CAM and convention health professions may be warranted, but will require significant efforts to make it feasible.

Acknowledgements

The authors would like to thank Michelle Anderson, program coordinator at Logan College of Chiropractic, for coordinating the complexities of multi-institutional data management. They also thank Carl W. Saubert IV, PhD, Vice President of Academic Affairs at Logan College of Chiropractic, for facilitating the collaborative arrangements with the naturopathic medicine institutions.

References


