

Research

Chiropractic Students' Perceptions about Interdisciplinary Collaboration

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ABSTRACT

Objective: To assess the attitudes of chiropractic students toward interdisciplinary collaboration, as well as to compare the attitudes of students at chiropractic-only colleges to those in chiropractic institutions training multiple health professions.

Methods: This was a cross-sectional survey conducted in 4 chiropractic institutions. Two are universities offering training in chiropractic and other CAM health professions, and two are chiropractic colleges offering only chiropractic training. Students were approximately midway in their course of training. The study instrument was the Interdisciplinary Education Perception Scale (IEPS), an 18-item questionnaire comprising 4 factors, with a 6-point Likert response scale. Mean total scores for each group of students were compared using an analysis of variance (ANOVA), with a post-hoc Bonferroni test of multiple comparisons. The mean total score of the two chiropractic-only colleges was compared to the mean total score of the two multiple health professions colleges using a t-test for independent samples.

Results: The survey was conducted in 2011 with 248 students. The mean total scores did not differ significantly among the 4 colleges ($p = 0.57$), nor did they when comparing the 2 chiropractic-only colleges to the 2 multiple health professions colleges ($p = 0.47$).

Conclusion: Based on the non-significant differences between the scores at the 4 institutions we surveyed, as well as their overall similarity to the students' scores in the 2000 study, we feel it is appropriate to aggregate all DC students' scores in our planned study involving samples from a number of health professions students.

Introduction

Enhanced coordination of care and interdisciplinary collaboration are essential to address the challenges of spiraling health care costs and the prevalence of comorbidities in our aging population.¹ Since the 1998 report from the Pew Health Professions Commission, “Recreating Health Professional Practice for a New Century,” the need for curricular emphasis on interdisciplinary collaboration in health professions’ training has been apparent.²

Furthermore, the rise in the use of complementary and alternative medicine (CAM) health professions’ services makes these professions’ integration essential as well. The Academic Consortium for Complementary and Alternative Health Care (ACCAHC) released a statement in 2010, “Competencies for Optimal Practice in Integrated Environments,” highlighting the importance of interdisciplinary collaboration (<http://accahc.org/images/accahc-coi-optimal-practice.pdf>).

An initial step toward such collaboration is to assess health professions students’ attitudes toward it. The “Interdisciplinary Education Perception Scale”³ has been used recently to assess attitudes of students of medicine, nursing, and allied health.⁴⁻⁷ To date, only one study—published in 2002—compared CAM students to mainstream health care professions students, and the only CAM profession included was chiropractic.⁸ Since that study was conducted, a trend in chiropractic colleges has evolved in which chiropractic-only institutions have added programs such as massage therapy and acupuncture/Oriental medicine, and become universities.

This project was designed to reassess the attitudes of chiropractic students toward interdisciplinary collaboration, as well as to compare the attitudes of students at chiropractic-only colleges to those in chiropractic institutions training multiple health professions, by means of the “Interdisciplinary Education Perception Scale” (IEPS). This comparison was made in order to assess the appropriateness of combining scores for all chiropractic students in a planned future study which will include multiple health professions.

Methods

Design

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

Sample Population

Participating chiropractic institutions were selected to represent different geographic areas in the U.S. and different institutional structures. Two are universities (one Midwest, one West coast), offering training in chiropractic and other CAM health professions, and two are

chiropractic colleges (one in Midwest, one in Southwest) offering only chiropractic training; although they also offer Master's degrees in other areas, they do not train other health professions. Students were approximately midway in their course of training; this stage was selected in order to be able to reflect the knowledge and attitudes characteristic of their institution's program. In chiropractic training, which is usually arranged in trimesters, this translates to approximately trimesters 5-7 (of 10). Samples of convenience were used; all students present in class on the day the survey was administered comprised the sample.

Informed Consent

A designated faculty member at each of the participating institutions administered the survey after explaining it to the students present in the class on the day of administration. The faculty member showed a Powerpoint slide to the class explaining the purpose of the study, naming the principal investigator and coinvestigator at that institution, and saying that participation was voluntary and anonymous, and that taking part or not taking part in the survey would not affect their course grade or relationship with the instructor. The project was approved by each participating institution's Institutional Review Board before the survey was administered.

Questionnaire

The questionnaire collected demographics (age, sex and ethnicity). Each form was also identified by institution and trimester of program. The study instrument was the Interdisciplinary Education Perception Scale (IEPS), an 18-item questionnaire with a 6-point Likert response scale as follows: "strongly disagree" (1), "moderately disagree" (2), "somewhat disagree" (3), "somewhat agree" (4), "moderately agree" (5), "strongly agree" (6).³

The IEPS contains four factors representing different domains: competence and autonomy, perceived need for cooperation, perception of actual cooperation, and understanding others' value. Higher scores indicate more positive attitudes. The reliability and validity of this instrument were published in the original study involving allied health professions students, for whom normative data were provided.³ **Table 1** summarizes the items in the IEPS.

Table 1. Summary of items and factors comprising the Interdisciplinary Education Perception Scale. *

Factor 1: Competence and Autonomy

Individuals in my profession...

- are well trained.
- demonstrate autonomy.
- are respected by other professions.
- are very positive about their goals and objectives.
- are very positive about their contributions and accomplishments.
- are thought highly of by other professions.
- trust each other's professional judgment.
- are extremely competent.

Factor 2: Perceived Need for Cooperation

Individuals in my profession...

- need to cooperate with other professions.
- must depend on other professions.

Factor 3: Perception of Actual Cooperation

Individuals in my profession...

- are able to work closely with other professions.
- are willing to share information and resources with other professions.
- have good relations with other professions.
- think highly of other related professions.
- work well with each other.

Factor 4: Understanding of Others' Value

Individuals in my profession...

- have a higher status than other professions.
- try to understand the capabilities and contributions of other professions.
- often have their advice sought by other professions.

* Each item is scored on a Likert scale of 1 (“strongly disagree”) to 6 (“strongly agree”). Source: Luecht RM, Madsen MK, Taugher MP, Petterson BJ. Assessing professional perceptions: design and validation of an interdisciplinary education perception scale. *J Allied Health* 1990; Spring:181-191.

Data Analysis

Scores for each of the 4 factors were weighted and computed using the algorithm developed by Luecht et al.,³ who created the survey instrument. Mean total scores for each group of students were compared using an analysis of variance (ANOVA), with a post-hoc Bonferroni test of multiple comparisons. The mean total score of the two chiropractic-only colleges was compared to the mean total score of the two multiple health professions colleges using a t-test for independent samples.

Results

Sample characteristics

The survey was conducted in the spring trimester (College 1) and summer trimester (all others) of 2011. The total number of students was 248. **Table 2** summarizes the demographics of the 4 institutions' samples. They did not differ in terms of gender, with men predominating slightly (57.3% overall), but they differed significantly by age and race/ethnicity. College 1 appeared to have younger students, with a mean age of 25.6, more than 2 years younger than the means for the other 3 institutions. In terms of ethnicity, 1 chiropractic-only college and 1 multiple health professions university had lower proportions of white students (62.3% and 51.4%) respectively, compared to the other two institutions (92.1% and 86.7%).

Table 2. Demographics of students in participating chiropractic institutions.

	% of n				
	College 1 ¹ (n=76)	College 2 ² (n=53)	Univ. 1 ¹ (n=45)	Univ. 2 ³ (n=74)	Total (n=248)
Mean age in years* (minimum, maximum)	25.6 (19, 54)	27.7 (23, 48)	27.9 (23, 45)	28.5 (23, 53)	27.3 (19, 54)
Gender					
Men	57.9%	54.7%	55.6%	59.5%	57.3%
Women	39.5%	41.5%	44.4%	37.8%	40.3%
Missing	2.6%	3.8%	0%	2.7%	2.4%
Race/Ethnicity**					
White	92.1%	62.3%	86.7%	51.4%	72.6%
Asian/Pacific Islander	1.3%	7.5%	6.7%	21.6%	9.7%
Hispanic	0%	9.4%	2.2%	9.5%	5.2%
Black/African American	1.3%	9.4%	2.2%	1.4%	3.2%
American Indian	1.3%	0%	0%	1.4%	0.8%
Other	1.3%	0%	2.2%	2.7%	1.6%
Missing	2.6%	11.3%	0%	12.2%	6.9%

¹ Midwest² Southwest³ West Coast

* Mean age differed significantly between groups (ANOVA, p=.01).

** Race/ethnicity differed significantly between groups (Pearson Chi-square, p=.00).

IEPS scores

Table 3 gives the mean scores for each IEPS question, by institution. Overall, all but 3 of the scores were > 3.5, indicating that on average respondents agreed with nearly all the statements. The 3 statements with means < 3.5 were:

1. “Individuals in my profession have their work respected by individuals in other professions” (mean 3.4; Factor 1, Competence and Autonomy).
2. “Individuals in my profession are thought highly of by individuals in other professions” (mean 3.2; Factor 1, Competence and Autonomy).
3. “Individuals in my profession have a higher status than individuals in other professions” (mean 3.3; Factor 4: Understanding of Others’ Value).

Table 3. Mean scores for IEPS items, by college.*

Questions	College		University		Total
	1	2	1	2	
Individuals in my profession:					
Factor 1: Competence and Autonomy					
· are well trained.	5.1	4.8	4.8	4.6	4.8
· demonstrate a great deal of autonomy.	4.5	4.9	4.6	4.6	4.6
· have their work respected by individuals in other professions.	3.4	3.5	3.1	3.6	3.4
· are very positive about their goals and objectives.	5.1	5.0	5.1	4.5	4.9
· are very positive about their contributions and accomplishments.	5.3	5.2	5.5	5.0	5.2
· are thought highly of by individuals in other professions.	3.3	3.1	2.9	3.3	3.2
· trust each other's professional judgment.	4.5	4.2	4.0	4.1	4.2
· are extremely competent.	5.0	4.5	4.4	4.4	4.6
Factor 2: Perceived Need for Cooperation					
· need to cooperate with other professions.	5.5	5.8	5.8	5.4	5.6
· must depend upon the work of people in other professions.	3.6	4.1	4.0	3.7	3.8
Factor 3: Perception of Actual Cooperation					
· are able to work closely with individuals in other professions.	4.5	4.5	4.7	4.5	4.5
· are willing to share information and resources with other professions.	4.8	4.7	4.7	4.7	4.7
· have good relations with people in other	4.2	4.5	4.4	4.3	4.3

professions.

· think highly of other related professions.	4.3	4.4	4.3	4.4	4.3
· work well with each other.	4.7	4.4	4.5	4.4	4.5

Factor 4: Understanding of Others' Value

· have a higher status than individuals in other professions.	3.2	3.3	2.9	3.5	3.3
· make every effort to understand the capabilities and contributions of other professionals.	4.1	4.4	4.0	4.2	4.2
· often have their advice sought by Individuals in other professions.	3.7	3.9	3.3	4.1	3.8

*Score values: 1= strongly disagree, 2= moderately disagree, 3= somewhat disagree, 4= somewhat agree, 5= moderately agree, 6=strongly agree.

Table 4 summarizes the factor and total scores by institution. Overall, Factors 1 (Competence and Autonomy) and 3 (Perception of Actual Cooperation) had the highest mean scores (70.1 and 67.3, respectively). The mean total scores did not differ significantly among the 4 colleges ($p = 0.57$). When comparing the 2 chiropractic-only colleges to the 2 multiple health professions universities (**Table 5**), the mean total scores were 233.9 and 229.9, respectively; the difference between them was not statistically significant ($p = 0.47$).

Table 4. IEPS scores for all participating institutions.

Site	College 1 (n=76)	College 2 (n=53)	Univ. 1 (n=45)	Univ. 2 (n=74)	Total* (n=248)
Factor 1: Competence and Autonomy	72.3	70.2	68.9	68.3	70.1
Factor 2: Perceived Need for Cooperation	54.5	59.8	59.2	54.4	56.4
Factor 3: Perception of Actual Cooperation	67.3	67.1	67.8	67.0	67.3
Factor 4: Understanding of Others' Value	44.3	45.9	40.6	47.3	44.9
Total score: Sum of Factors 1-4	230.8	238.2	233.5	227.8	232.0

* Mean total scores did not differ significantly (ANOVA, $p=.57$).

Table 5. Comparison of IEPS total scores for chiropractic-only colleges vs. chiropractic plus multiple health profession universities.

Site	Stand-alone (n=129)	University (n=119)	Total (n=248)
Total score: Sum of Factors 1-4*	233.9	229.9	232.0

* Mean total scores did not differ significantly (t-test for independent means, $p=.47$).

Discussion

This study's results should be interpreted in the light of several limitations. First, it only included 4 of the 17 chiropractic institutions in the U.S., so conclusions cannot necessarily be generalized to other or all colleges. Second, the IEPS does not cover every aspect of interdisciplinary collaboration, so there are likely additional factors that we did not assess. Furthermore, the IEPS was developed in 1990, and cultural changes in the health care professions may affect the reliability and validity of this instrument. Finally, the survey assesses only students' attitudes and so conclusions about their behavior, either current or future, cannot be drawn. Finally, self-report data are always subject to bias.

It is interesting that the DC students' total scores in this study are quite similar to those in the only other study surveying DC students in the Midwest (Iowa) with the IEPS—which was published in 2002.⁸ **Table 6** compares this study's results with those of the 2002 study, illustrating the remarkable similarity in DC students' scores on all factors. This suggests that attitudes have not changed in the 9 years since the first study was published. Furthermore, comparing the current results to the findings from the 2002 study for medical and nursing students, it is clear that DC students still score lower in every factor on the IEPS.

Table 6. Comparison of health professions' students IEPS scores.*

	2011 study	2002 study		
	chiropractic	chiropractic	medical	nursing
Factor 1: Competence and Autonomy	70.1	73.4	80.4	72.7
Factor 2: Perceived Need for Cooperation	56.4	55.9	66.8	64.2
Factor 3: Perception of Actual Cooperation	67.3	66.0	70.9	74.2
Factor 4: Understanding of Others' Value	44.9	43.9	52.8	49.9
Total: Sum of Factors 1-4	232.0	238.9	270.9	260.6

* Source: Hawk C, Buckwalter K, Byrd L, Cigelman S, Dorfman L, Ferguson K. Health professions students' perceptions on interprofessional relationships. *Acad Med.* 2002;77(4):81-84.⁸

Conclusion

Based on the non-significant differences between the scores at the 4 institutions we surveyed, as well as their overall similarity to the students' scores in the 2002 study, we feel it is appropriate to aggregate all DC students' scores in our planned study involving samples from a number of health professions students.

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