

# Health Professions Students' Perceptions of Interprofessional Relationships

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## ABSTRACT

**Purpose.** To make a preliminary assessment of the perceptions of health professions students about interprofessional cooperation.

**Method.** Health professions students (588 students from eight professions) at the Iowa Geriatric Education Center's partner institutions received a questionnaire of demographics questions and the Interdisciplinary Education Perception Scale (IEPS). The IEPS is an 18-item questionnaire that uses a six-point Likert-type scale to measure attitudes toward interprofessional cooperation on four factors: competence and autonomy, perceived need for cooperation, perception of actual cooperation, and understanding others' value.

**Results.** Total mean IEPS scores differed significantly among professional groups ( $p = .001$ ), with physician as-

sistant students scoring highest (most positive attitudes) and chiropractic students scoring lowest. The medical students' mean total score was significantly lower than was that of physician assistant students ( $p = .003$ ) and higher than was that of chiropractic students ( $p = .000$ ), but medical students' scores did not differ significantly at the  $\alpha = .05$  level from those of osteopathy, physical therapy, nursing, podiatry, or social work students.

**Conclusion.** This study provides the first normative data for the IEPS for students from these eight health professions. This instrument may be valuable when designing an evaluation scheme for training programs that have interdisciplinary components, which may be increasingly prevalent in the future.

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Changes in the way health care is delivered in the U.S. require corresponding changes in the training of all health professions to help them meet the challenges they will face in practice.<sup>1</sup> The

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1998 Pew Health Professions Commission's report, "Recreating Health Professional Practice for a New Century,"<sup>1</sup> has served as the basis for assessment and curricular change in health professions training institutions.<sup>2,3</sup> One of its recommendations is to require interdisciplinary competence in all health professionals.<sup>1</sup> A recent systematic review supports competent collaboration between physicians and nurses, with its results indicating that increased collaboration produced better outcomes that were important to patients and managers, and that further studies are needed to identify barriers to collaboration.<sup>4</sup> An important time to begin to identify barriers to collaboration and institute interdisciplinary training is during medical students' training. Over 50% of 300

physicians surveyed on the Pew Health Professions Commission's competencies felt that undergraduate medical education was very important in training physicians to work on interdisciplinary teams.<sup>2,3,5</sup>

Recognizing the importance of interdisciplinary training for undergraduates, the Iowa Geriatric Education Center (IGEC), funded in 1999 by the U.S. Health Resources and Services Administration, designated the improvement of geriatrics education of health professions students through multidisciplinary curriculum development as one of its goals. The survey's results described in this report are a preliminary assessment of the perceptions of health professions students at the IGEC on interprofessional cooperation.

## METHOD

The project was conducted during the spring 2000 semester at the state's three major health professions training institutions, which form the IGEC partnership. Students of medicine, nursing, social work (University of Iowa), osteopathy, physical therapy, physician assistant, podiatry (Des Moines University—Osteopathic Medical Center), and chiropractic (Palmer College of Chiropractic) were involved. The population sampled consisted of all students in a single term in the preclinical phase of training for each profession. An investigator at each institution designated a required first- or second- year course in their respective programs for the survey. (Students at Des Moines University—osteopathy, physical therapy, physician assistant, and podiatry—have some clinical exposure integrated into their didactic preclinical curricula.) Students present in those classes on the designated administration day were asked to complete the questionnaire, using a set of standardized instructions that stated the purpose of the survey, the sponsoring program (IGEC), and that their participation was voluntary and would not affect their course grades. This method was modified for medical students ( $n = 155$ ), who were instead provided the questionnaire in the designated class as part of a packet of assignments and asked to return it at a later date.

The questionnaire asked demographics questions and contained the Interdisciplinary Education Perception Scale (IEPS).<sup>6</sup> The IEPS is an 18-item Likert-scale instrument divided into four factors: competence and autonomy, perceived need for cooperation, perception of actual cooperation, and understanding others' value.<sup>6</sup> The Likert scale ranges from "strongly disagree" (1 point) to "strongly agree" (6 points). A higher score indicates a more positive attitude toward interprofessional cooperation. The maximum possible scores for the four factors are 96, 72, 90, and

72, respectively, and the maximum total score is 330.<sup>6</sup> The questions comprising each factor are shown in Table 1.

The reliability, validity, and normative data of the IEPS for several allied health professions have been published, but normative data have yet to be published for all the health professions in the IGEC partnership.<sup>6</sup> The mean total scores for each group of students were compared using analysis of variance (ANOVA), with a post-hoc Bonferroni test of multiple comparisons to make interprofessional comparisons.

## RESULTS

### Characteristics of the Sample Population

Table 2 shows the numbers of students who completed the questionnaire, as well as the sample sizes, class sizes, and demographics for the students at the

three institutions. The questionnaire was administered to a total of 609 students (see Table 2 for breakdown by profession). Of the 609 students who returned the questionnaire, 588 (97%) completed all questions on the IEPS. At least 93% of all groups of students receiving the questionnaire completed the IEPS.

The sample as a whole was predominantly women and white. The highest proportion of nonwhite students in the total sample was Asian (6% of total), with other racial groups each comprising less than 2%. However, as shown in Table 2, data on gender and race were frequently not supplied by the students, with 25% missing responses for gender (ranging among profession groups from 1% in chiropractic to 55% in podiatry) and 12% for race (ranging from 0 in chiropractic and social work to 26% in physician assistants). The mean age for all students was 26.2 years (range 20–

**Table 1**

Items for Each Factor of the Interdisciplinary Education Perception Scale <sup>6</sup>		
Factor	Item: Individuals in My Profession:	Item: Individuals in Other Professions:
Competence and autonomy	Are well trained	Respect my profession's work Think highly of my profession
	Are autonomous	
	Are positive about goals/objectives	
	Are positive about their contributions	
	Trust each other's professional judgment	
	Are extremely competent	
Perceived need for cooperation	Need to cooperate with other professions	
	Must depend on other professions' work	
Perception of actual cooperation	Can work closely with other professions	
	Are willing to share information/resources with other professions	
	Have good relations with other professions	
	Think highly of other related professions	
	Work well with each other	
Understanding others' value	Have higher status than other professions	Often seek advice of people in my profession
	Make effort to understand contributions of other professionals	

58), with the oldest mean age for social work students (30.5) and the youngest for medical (24.2) and physical therapy students (24.3). For the total sample, 15% of students did not supply their ages.

### IEPS Scores

Table 3 shows the factor and total scores for the students in all eight health professions. IEPS mean total scores did not differ significantly by gender, age, or race, but did differ significantly by health profession ( $p = .001$ ), with physician assistant students scoring highest and chiropractic students scoring lowest. The medical students' mean total score was significantly lower than was that of physician assistant students ( $p = .003$ ) and higher than was that of chiropractic students ( $p = .000$ ). It did not differ significantly at the  $\alpha = .05$  level from those of osteopathy, physical therapy, nursing, podiatry, or social work students.

### DISCUSSION

This study provides the first normative data for the IEPS for the eight health

professions represented in this study. Several limitations to the generalizability of these results must be considered. Results may have been affected by the students' demographics. Iowa has little ethnic diversity, and it remains to be seen whether ethnicity affects students' attitudes toward interprofessional interactions. In addition, it is possible that a response bias was present in chiropractic and nursing students, a substantial proportion of which did not receive the questionnaire. In a previous study, a sample of 94 chiropractic students had a median IEPS total score of 232.00, similar to but lower than the 238.93 mean score we found. This suggests that any nonresponse bias may have been in a positive direction, at least for this student group.<sup>7</sup> Because the use of this instrument is exploratory, our results may still be useful for purposes of comparison if others wish to use the IEPS to assess these health professions students elsewhere.

In the Luecht et al. study describing the development of this instrument, normative data were shown for a sample of 143 allied health professions students, with the largest group ( $n = 85$ ) being occupational therapy students.<sup>6</sup> In

that study, the overall total IEPS score was 262.35, quite similar to this study's overall total mean score of 265.93. The occupational therapy students in that study had a mean total score of 267.54, which was closest to this study's medical students' score of 270.85.

Because this study represents the first use of this instrument in these professions, it is premature to draw any firm conclusions from the results. Evaluating statistically significant differences among professions should be done cautiously, because the actual meaning of these differences in terms of attitudes is unknown. Furthermore, four of our groups had only 30–37 students, and may have lacked the statistical power to reflect true differences in scores (Type II error).

With these caveats in mind, in the sample for these eight professions, it appears the physician assistant students definitely showed the most positive attitude toward all four factors assessing interprofessional collaboration. The sample also showed a pronounced attitudinal gap between the seven "mainstream" professions and chiropractic students. This may indicate a gulf between complementary and mainstream professions, or it may reflect the fact

**Table 2**

Demographics of Students from Schools Affiliated with the Iowa Geriatric Education Center Responding to a Survey on Interprofessional Cooperation, by Profession								
Profession	Response Rate	Demographic						
		Mean Age* (Years)	Gender (%)†			Race (%)†		
			Women	Men	No Response	White	Other	No Response
Chiropractic	76/138	27.8	30	68	1	90	10	0
Medicine	125/155	24.2	40	56	4	78	18	4
Nursing	111/197	26.0	69	4	27	78	5	17
Osteopathy	151/191	26.2	36	28	36	70	19	11
Physical therapy	39/40	24.3	46	36	18	95	5	0
Physician assistant	31/31	27.9	29	19	52	74	0	26
Podiatry	38/43	27.3	11	34	55	68	11	21
Social work	38/43	30.5	76	18	5	92	8	0
All students	609/838	26.2	40	35	25	79	12	12

\*N = 515 due to missing responses.  
 †Totals may not equal 100% due to rounding.

**Table 3**

Interdisciplinary Education Perception Scale Mean Scores for Students from Schools Affiliated with the Iowa Geriatric Education Center, by Profession*						
Profession	n	Factor Mean Score (SD)				
		Competence/ Autonomy	Perceived Need for Cooperation	Perception of Actual Cooperation	Understanding Others' Value	Total
Physician assistant	30	82.80 (6.47)	67.80 (5.49)	82.80 (7.37)	58.53 (6.35)	291.93† (18.66)
Osteopathy	141	80.89 (9.36)	65.36 (9.69)	77.04 (11.19)	54.50 (8.85)	277.79 (27.38)
Physical therapy	37	79.30 (6.45)	66.00 (6.33)	78.41 (7.46)	48.32 (8.02)	272.03 (21.91)
Medicine	120	80.43 (8.79)	66.75 (7.68)	70.90 (10.69)	52.77 (7.94)	270.85 (24.48)
Nursing	111	72.70 (10.20)	64.22 (8.62)	74.16 (9.08)	49.48 (9.39)	260.56 (28.66)
Podiatry	37	72.00 (10.62)	65.84 (7.14)	72.41 (11.88)	47.35 (9.50)	257.60 (31.74)
Social work	37	69.35 (8.95)	65.19 (6.66)	76.05 (6.17)	46.16 (6.97)	256.76 (19.61)
Chiropractic	75	73.36 (9.47)	55.68 (9.12)	66.00 (12.19)	43.89 (10.46)	238.93† (29.07)
All students	588	77.00 (10.12)	64.38 (8.98)	73.86 (11.06)	50.69 (9.60)	265.93 (29.61)

\*Students of medicine, nursing, and social work (University of Iowa), students of osteopathy, physical therapy, physician assistant, podiatry (Des Moines University—Osteopathic Medical Center), students of chiropractic (Palmer College of Chiropractic).

†Significantly different from the total score of medical students at the  $\alpha = .05$  level.

that the chiropractic institution trains only one profession, unlike the other two institutions representing the other seven professions in our sample. This would suggest that simple proximity may increase familiarity with other professions and, perhaps, facilitate interdisciplinary cooperation.

Currently, an increasing number of health professions education programs, especially in medicine and nursing, are incorporating the Pew Health Professions Commission's recommended competencies, including interdisciplinary training.<sup>2-5,8,9</sup> Incorporating outcomes assessments that not only measure the attitudes targeted for development in students but are also sensitive to change in these attitudes is an essential aspect of evaluating such innovative programs.<sup>10</sup> Therefore, although these preliminary normative data are interesting in comparing health professions students, it is likely at this point that the chief utility of the IEPS may be in assessing outcomes in terms of attitudinal changes after a course or curriculum emphasizing interdisciplinary collaboration. Its use in this capacity has been

documented in a previous study, also done in conjunction with the IGEC, and the group is continuing to use it as an outcomes instrument.<sup>7</sup> The IEPS may be valuable when designing an evaluation scheme for training programs that have interdisciplinary components, which may be increasingly prevalent in the future.

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