
The Quality of Chiropractic College Education A Survey of Practicing Chiropractors

John M. Mayer, D.C., M.S., Marvin Druger, Ph.D., Syracuse University, and **Robert J. Ploutz-Snyder, Ph.D.,** New York Chiropractic College

The purpose of this study was to collect data about the quality of chiropractic college education from the perspective of established chiropractors. A random sample of 450 doctors of chiropractic who graduated from chiropractic college between the years of 1984 and 1991 were sent a two-page survey. Respondents were asked to rate the overall quality (OQ) of chiropractic education in preparing for practice and to rate the quality of their education in preparing for 13 aspects designated as patient care (PC) and 10 aspects designated as practice management (PM). One hundred seventy-five chiropractors responded to the survey (response rate = 39%). Mean values (+/ - *SD*) for OQ, PC, and PM were 1.9 (0.7), 2.2 (0.5), and 3.3 (0.7), respectively, on a 5-point scale in which 1 = excellent, 2 = good, 3 = fair, 4 = poor, and 5 = very poor. PC was rated significantly better than PM ($p \leq .05$). The correlation between PC and OQ was 0.74 ($r^2 = 0.55$; $p \leq .05$), while the correlation between PM and OQ was 0.51 ($r^2 = 0.26$; $p \leq .05$). The results of this study indicate that in the opinions of the graduates, chiropractic education adequately prepares the practitioners to care for patients, but may not adequately prepare them for the business aspects of practice. Given the relatively poor ratings of practice management education, further investigation concerning practice management is warranted. (*The Journal of Chiropractic Education* 13(2): 131-136, 1999)

Key words: chiropractic, education, quality

INTRODUCTION

The chiropractic profession has had a turbulent 100 years. Prominent issues include seclusion from mainstream health care, low public acceptance, and legislative discrimination (1-3). Each of these issues brings chiropractic education into question. It has been suggested that chiropractic education, in particular, clinical training, is an area that needs attention (4). For example, even though the total classroom hours in the chiropractic degree program parallel or exceed medicine and osteopathy, chiropractic students receive less clinical training (5,6). Whether this relatively low level of clinical education

adequately prepares the graduates of chiropractic colleges for practice has not been investigated.

Recently, authors have stressed the importance of quality in chiropractic education and its relevancy to clinical practice. Adams (7) stated that efficacy must be subservient to relevancy in education to prepare chiropractors to respond to the health care needs of the community. Good (8) suggested that a quality chiropractic education must meet the needs of the health care customer by producing competent practitioners. Winterstein (9) alluded to the importance of quality in chiropractic education to establish credibility for the profession.

Several authors have attempted to describe what quality means in higher education (10-12), but a universal definition of quality has not been established (10, 13). Furthermore, Tan (10) reported that many studies have identified a variety of factors related

to quality, but none has sufficiently examined the relationship between quality and the educational development of students. Gemmell (13) evaluated the quality of North American chiropractic colleges through the use of objective measures such as faculty–student ratios, number of publications in the *Journal of Manipulative and Physiological Therapeutics*, and the percent of college faculty with academic doctoral degrees. Good (8) suggested that the terms “exceptional,” “perfection,” “transformation,” “fitness for purpose,” and “value for money” should be the defining parameters for quality in chiropractic education.

There is little research that has explored the relationship between quality in chiropractic education and clinical practice. Morgenstern (14) reported that the clinical actions of practicing chiropractors can be reasonably predicted from their chiropractic education experience. However, there is a paucity of literature that has examined the quality of chiropractic college education and its relevance to clinical practice from the perspective of graduates. Furthermore, the need for research addressing quality in chiropractic education has been emphasized (7, 8, 15).

Therefore, the purpose of this study was to collect data about the perceived quality of chiropractic college education as it relates to preparing chiropractors for clinical practice.

MATERIALS AND METHODS

A two-page survey was mailed to a random sample of 450 doctors of chiropractic in the United States who graduated from chiropractic college between 1984 and 1991. This range was chosen to ensure that all respondents received a modern chiropractic education and were also experienced practitioners. Names were taken from the 1996–1997 edition of the *National Directory of Chiropractic* (16) and were chosen randomly from the directory’s alphabetical listing of chiropractors. A cover letter describing the research intent and assuring confidentiality was attached to the survey. Responding to the survey acted as the informed consent to participate. All surveys were sent out in June 1997 and were returned anonymously by August 1997. There was no follow-up to the initial survey, although the response rate was fairly high for mail-in surveys.

Respondents were asked to supply demographic information about their education and practice, including their chiropractic college, years in practice,

gender, state where practicing, and status of current practice (subcontractor in another provider’s office, owner of private practice, associate for another practitioner, ownership in a group practice, or currently not practicing). Respondents were then asked to rate the quality of their chiropractic college education in preparing them for 23 aspects of clinical practice on a 5-point scale with labels as follows: 1 = excellent, 2 = good, 3 = fair, 4 = poor, and 5 = very poor. Thirteen aspects were designated as patient care, while 10 were designated as practice management characteristics. The respondents were asked not to rate those aspects that were not utilized in their practices. The overall quality of chiropractic education as preparation for practice was rated on the same 5-point scale. Additionally, the respondents were asked for their written opinions on four open-ended questions about their chiropractic education.

The 13 patient care aspects were pooled for statistical analysis by calculating a grand mean value from the weighted mean value of each aspect. The 10 practice management aspects were pooled in a similar manner. The general linear model was used to compare mean values and for correlation between overall quality and patient care aspects and overall quality and practice management aspects. Mean values are reported \pm standard deviations, unless otherwise noted.

Two chiropractors in full-time practice, a chiropractic college faculty member, and a university professor of statistics were consulted to ensure clarity and relevance in the survey design.

RESULTS

The survey response rate was 39% ($n = 175$). Twenty-two percent of the respondents were female, while 78% were male. The mean value for the number of years in active practice for the respondents was 9.6 (2.2) years. Employment characteristics of the respondents were as follows: 85% were owners of a private practice, 9% were part-owners of a group practice, 2% were subcontractors in another provider’s facility, and 4% were employed by another chiropractor. The college of graduation rates among the respondents are described in Table 1.

Summaries of the respondents’ ratings of the quality of their chiropractic education as preparation for practice are found in Tables 2 and 3.

Table 1. College of Graduation of the Respondents

College	Percent of respondents ^a
Palmer (IA, CA)	29.7
Life (GA, CA)	9.7
New York	9.7
National	8.6
Logan	8.0
Texas	6.9
Northwestern	5.7
Cleveland (MO, CA)	5.7
Western States	5.7
Los Angeles	4.0
Sherman	3.4
Parker	1.7
Canadian Memorial	1.1

^a*n* = 175

Response rates for individual questions varied since the respondents were advised to not answer questions irrelevant to their practices. Blood work/urinalysis and practicing in a managed care environment had the lowest response rates, 80% and 81%, respectively. SOAP (Subjective, Objective, Assessment, Plan) note/report writing, devising patient treatment plans, and new patient acquisition had 100% response rates. The aspects of practice that received the highest ratings by the respondents were radiology, spinal adjusting, and new patient exam procedures with mean values of 1.4 (0.7), 1.5 (0.8), and 1.5 (0.7), respectively; and median and modal values of 1. On the other hand, practicing in a managed care environment received the lowest rating of any aspect [a mean value of 4.2 (0.9), and median and modal values of 4 and 5, respectively].

Table 2. Respondent Rating of Quality of Chiropractic Education as Preparation for Patient Care Aspects of Practice

Aspect of practice	<i>n</i>	Mean (SD)	Median	Mode
Radiology	174	1.4 (0.7)	1	1
Spinal adjusting	173	1.5 (0.8)	1	1
New patient exam procedures	173	1.5 (0.7)	1	1
Physical diagnosis skills	173	1.7 (0.7)	2	1
Managing orthopedic injuries	172	2.0 (0.8)	2	2
Managing neurological conditions	173	2.2 (0.8)	2	2
Blood work/urinalysis	140	2.3 (0.8)	2	2
Extremity adjusting	168	2.3 (1.1)	2	2
Physiotherapy/rehabilitation	160	2.3 (1.2)	2	2
Patient referral procedures	173	2.6 (1.0)	3	2
Devising patient treatment plans	175	2.8 (1.0)	3	3
Nutritional therapy	167	2.8 (0.9)	3	3
Management of visceral disorders	165	2.9 (0.9)	3	3

Rating scale: 1 = excellent, 2 = good, 3 = fair, 4 = poor, 5 = very poor.

Table 3. Respondent Rating of Quality of Chiropractic Education as Preparation for Practice Management Aspects of Practice

Aspect of practice	<i>n</i>	Mean (SD)	Median	Mode
SOAP note/report writing	175	2.3 (1.0)	2	2
Communication skills	173	2.9 (1.0)	3	3
Multidisciplinary interaction	172	2.9 (1.0)	3	3
Legal aspects of practice	174	2.9 (1.0)	3	3
Patient load seen in practice	169	2.9 (1.0)	3	3
New patient acquisition	175	3.3 (1.0)	3	4
Financial aspects of practice	173	3.7 (1.0)	4	4
Employee relations	169	3.9 (0.9)	4	4
Insurance/billing procedures	171	3.9 (1.0)	4	4
Practicing in a managed care system	142	4.2 (0.9)	4	5

Rating scale: 1 = excellent, 2 = good, 3 = fair, 4 = poor, 5 = very poor.

The mean value of the pooled practice management data was 3.3 (0.7), representing a value between poor and good on the 5-point scale. The mean value of the pooled patient care data was 2.2 (0.5), representing a value between fair and good. The mean value for patient care was significantly lower than that of practice management ($p \leq .05$). The mean value for the rating of overall quality of chiropractic education as preparation for practice was 1.9 (0.7), representing a value between good and excellent. Median and modal values were 1 for overall quality. The mean value for overall quality was significantly lower than patient care and practice management ($p \leq .05$). The Pearson correlation coefficient (r) between overall quality and patient care was .74 ($r^2 = .55$, $p \leq .05$). The Pearson correlation coefficient (r) between overall quality and practice management was .51 ($r^2 = .26$, $p \leq .05$).

DISCUSSION

The demographic characteristics of the 175 respondents were similar to the demographics of the 450 doctors of chiropractic who were randomly chosen, including college of graduation. However, it appears that there was an overrepresentation of graduates from Palmer College of Chiropractic in the sample. If the current enrollment figures in chiropractic colleges are indicative of the population of practicing chiropractors, then the sample of respondents in the present study is somewhat biased. However, current enrollment figures probably do not reflect the population of practicing chiropractors. Also, it is unknown if the source from which the random sample was chosen, the *National Directory of Chiropractic* (16), accurately reflects the population of chiropractors at large. Obtaining information about the college of graduation of the population of practicing chiropractors in the United States is elusive. Still, it is believed that the data are illustrative and important, even if there is a biased representation of Palmer graduates.

Summaries of the respondents' ratings of the quality of education as preparation for practice are found in Tables 2 and 3. Strictly speaking, the scaling of the survey was categorical in nature. Categorical scaling was chosen in order to simplify the process of completing the survey, and therefore increase response rates. It was assumed that given an adequate sample size, the data would behave as truly continuous. An inspection of the data revealed that, as predicted, all dependent variables appeared

to be normally distributed, with means, medians, and modal responses roughly equal. Therefore, as common in the social sciences that rely heavily on survey methodologies, further analyses treated the data as continuous.

Respondents rated their chiropractic education favorably in preparing them for patient care in practice with a mean value of 2.2 (0.5). It is interesting to note that among the patient care aspects, practice radiology, spinal adjusting, and new patient exam procedures were rated the highest with mean values of 1.4 (0.7), 1.5 (0.8), and 1.5 (0.7), respectively, and median and modal values of 1. These procedures have formed the basis of patient interaction since the early history of the chiropractic profession (6). Therefore, it is logical that the education process has focused on these areas.

On the other hand, management of visceral disorders was rated the least favorable among patient care aspects with a mean value of 2.9 (0.9) and median and modal values of 3. One explanation for this relatively poor rating is that chiropractic colleges may be shying away from somatovisceral training, even though many chiropractic theories advocate somatovisceral responses and suggest viscerosomatic causes. It is possible that the majority of the chiropractic colleges are concentrating their efforts on the development of musculoskeletal specialists. It has been suggested that a potential role of chiropractic within the health delivery system is as a musculoskeletal specialty (17–19). Thus, chiropractic colleges may be de-emphasizing somatovisceral education in an effort to assimilate with mainstream health care.

The respondents rated the overall quality of their education as good preparation for practice with mean, median, and modal values of 1.9 (0.7), 2, and 2, respectively. This correlated well with how the respondents rated the quality of their education as preparation for patient care ($r = .74$, $r^2 = .55$). Thus, it appears that the 13 aspects of patient care accurately reflected the respondents' perceptions of the overall quality of their education as preparation for practice.

Review of the written responses concerning patient care education received in chiropractic college revealed a general level of satisfaction. Responses such as the following were commonplace: "A strong scientific background in understanding structure and function and its relationship to patients," "most importantly (chiropractic college) trained me to perform the chiropractic adjustment," "education in anatomy and physiology which enables diagnosis and/or referral

was most valuable," "technique (adjusting) class was most valuable," "diagnostically, the school was sound."

Respondents rated the quality of education as preparation for patient care aspects significantly better than the practice management aspects with mean values of 2.2 (0.5) and 3.3 (0.7), respectively ($p \leq .05$). Practicing in a managed care environment received the worst rating of any aspect and was the only aspect to have all measures of central tendencies between poor and very poor on the rating scale [mean, median, and modal values = 4.2 (0.9), 4, and 5, respectively]. One possible explanation for this low rating is that at the time in which the respondents were attending chiropractic college (1980–1991), managed care had not significantly infiltrated the market. Thus, there was little need for this type of training in the curriculum.

Review of the written responses indicated a general trend of dissatisfaction with practice management education received in chiropractic college. Responses such as the following were common: "Lack of business experience," "no help or education in operating a self-sustaining office," "did not teach me about business aspects of practice," "needed much more in starting and operating an office," "no practice management course," "lack of practice management," "no education in how to be in business as a chiropractor." It is evident that the written responses concur with the conclusions drawn from the rating scale data.

Despite the fact that practice management aspects were rated poorly and received unfavorable written responses, it does not appear that the perception of practice management education was reflected in the rating of overall quality. A relatively low coefficient of determination ($r^2 = .26$) indicated that practice management was a poor predictor of overall quality of chiropractic education as preparation for practice. One explanation for this finding is that respondents may not have placed an emphasis on their education in practice management when rating the overall quality of their education.

The present study's finding of a fair to poor rating of chiropractic education as preparation for practice management is consistent with the literature. For example, Good (8) recently stated that chiropractic colleges have failed to educate their students appropriately about practice management. However, the extent of practice management training that chiropractors receive outside of their formal chiropractic college education is unknown. Future

research needs to address this issue, as well as identify other factors related to the quality of practice management education during chiropractic college. Since the market share of managed care insurance coverage is rising (17) and professional competition continues to increase (20), adequate practice management education is a critical issue for the doctor of chiropractic (8).

CONCLUSION

The majority of established practitioners perceived the overall quality of their chiropractic college education in preparing for practice as good or excellent. Furthermore, they rated the quality of their education as preparation for patient care and practice management between fair and good, and between poor and fair, respectively.

The results of the study emphasize the need to develop strategies that evaluate the quality of chiropractic education which incorporate feedback from practicing chiropractors. Since the graduates perceived the overall quality of their education more favorably than their education in practice management and patient care, future research is needed to identify any additional factors related to perceived quality in chiropractic college education. Also, chiropractic colleges should address the perception of a fair to poor education in practice management by the graduates. These strategies may help the chiropractic college administrators reform the curricula in an effort to produce the most competent doctors of chiropractic.

Received, February 12, 1998

Revised, February 23, 1999

Accepted, March 2, 1999

Reprint requests: John M. Mayer, Department of Exercise Science, Syracuse University, 201 Women's Building, 810 Comstock Ave., Syracuse, NY 13244

REFERENCES

1. Janse J. The history of the development of the chiropractic profession. *J Natl Chiropr Assoc* 1952;July/Aug: 3–13.
2. Gibbons RW. Medical and social protest as part of American history. In: Haldeman S, ed. *Principles and Practice of Chiropractic*, 2nd ed. East Norwalk, CT: Appleton & Lange, 1992, pp. 15–28.
3. Mootz R, Haldeman S. The evolving role of chiropractic within mainstream health care. *Top Clin Chiropr* 1995;2(2):11–21.

4. Mootz R, Cohen, Chiropractic clinical teaching. *J Manipulative Physiol Ther* 1992;15(7):471-476.
5. Ratliff C, Rogers S, Richardson K. Comparison of core curriculum courses common to chiropractic, medical, and osteopathic schools in Missouri. *J Chiro pr Educ* 1990 (4):76-80.
6. Cherkin DC, Mootz RD. Chiropractic in the United States: Training, Practice, and Research. Agency for Health Care Policy and Research, publication 98-N002, 1997.
7. Adams A, Gatterman M. The state of the art of research on chiropractic education. *J Manipulative Physiol Ther* 1997;20(3): 179-184.
8. Good C. Defining quality in chiropractic education. *J Chiro pr Educ* 1995;9(1):27-38.
9. Winterstein J. The search for intra-professional harmony. Prepared for the Association of Chiropractic Colleges, September, 1995.
10. Tan DL. The assessment of quality in higher education: A critical review of the literature and research. *Res Higher Educ* 1986;24(3):223-265.
11. Webster DS. Advantages and disadvantages of methods of assessing quality. *Change* 1981;13:20-24.
12. Astin AW, Solmon LC. Measuring academic quality: an interim report. *Change* 1979;11:48-51.
13. Gemmell HA. An approach to the evaluation of academic quality of the North American schools of chiropractic medicine. *J Chiro pr Educ* 1992;6:23-30.
14. Morgenstern H. Chiropractic in North Carolina: a statistical investigation of practice patterns and service characteristics. Final report prepared for the North Carolina Chiropractic Association, Raleigh, NC, August, 1974.
15. Winterstein J. Philosophy of chiropractic: A contemporary perspective. Part 2. *ACA J Chiro pr* 1994;5:64-71.
16. National Directory of Chiropractic, 7th ed. Olathe, KS: One Directory of Chiropractic, 1996.
17. Coile RC. Chiropractic health care: the second century begins. *Top Clin Chiropr* 1995;2(2):22-30.
18. Hawk C. Chiropractic and primary care. In: Lawrence D, ed. *Advances in Chiropractic*. Chicago, IL: Mosby Year Book, 1996, vol 3.
19. Wardwell WI. Chiropractic: History and Evolution of a New Profession. St. Louis, MO: Mosby Year Book, 1992.
20. Cooper RA, Stoflet SJ. Trends in education and practice of alternative medicine clinicians. *Health Affairs* 1996;15:226-238.