

ORIGINAL ARTICLE

Utilizing doctors' attitudes toward staff training to inform a chiropractic technology curriculum

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Objective: The purpose of this study is to determine attitudes of doctors of chiropractic regarding the importance of staff training in specific skill areas to inform the curriculum management process of a chiropractic technology program.

Methods: A survey was distributed to registrants of a chiropractic homecoming event. On a 5-point Likert scale, respondents were asked to rate the degree of importance that staff members be trained in specific skills. Descriptive statistics were derived, and a 1-way analysis of variance (ANOVA) was used to test differences between groups based on years in practice and level of staff training.

Results: Doctors place a high level of importance on oral communication skills and low importance on nutrition and physical examinations. Comparing groups based on years in practice revealed differences in the areas of passive physiotherapies ($F = 3.61, p = .015$), legal issues/regulations ($F = 3.01, p = .032$), occupational safety and health regulation ($F = 4.27, p = .006$), and marketing ($F = 2.67, p = .049$). Comparing groups based on level of staff training revealed differences in the areas of occupational safety and health regulations ($F = 4.56, p = .005$) and cardiopulmonary resuscitation ($F = 4.91, p = .003$).

Conclusion: With regard to their assistants, doctors of chiropractic tend to place high importance on office skills requiring effective communication and place less importance on clinical skills such as physical examinations and physiotherapy.

Key Indexing Terms: Chiropractic; Education; Health Personnel, Attitude

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INTRODUCTION

Like other healthcare fields, the chiropractic profession utilizes support staff to accomplish various clinical functions. Often referred to as chiropractic assistants, chiropractic specialists, or chiropractic technologists, these allied healthcare professionals assist the doctor in performing such tasks as the physical examination, physiotherapy, radiography, and insurance billing and coding. The level of training for these paraprofessionals may range from on-the-job training to formal training programs. The most extensive training programs result in an academic degree. Graduates of one such staff training program earn an associate of science degree in chiropractic technology following the completion of a comprehensive curriculum consisting of coursework in both back- and front-office responsibilities. This program consists of 16 months of traditional classroom instruction and includes a 120-hour capstone externship program.

Curriculum management of a chiropractic technology program, as in any academic program, is an ongoing and

multitiered process. This process involves an assessment of needs, review of program- and course-level objectives, development of educational strategies, implementation, and assessment with reaction to assessment data.¹ Providing a curriculum that is current while successfully preparing students to enter the workforce requires that the needs of various stakeholders be considered. In addition to the needs of students, this process must also balance the needs and requirements of academic accrediting bodies, state and federal regulators, and the doctors of chiropractic who employ these allied healthcare professionals.

The needs of employers may be evaluated by assessing doctors' attitudes about staff training through the use of surveys. Employer surveys are commonly used by academic institutions to enhance a variety of educational processes.^{2,3} Little has been published about chiropractic staff or doctors' attitudes regarding chiropractic staff training. One previous study assessed doctor attitudes and opinions for the proposal of a curricular model for a chiropractic staff training program.⁴ This program,

Table 1 - Sample Characteristics

Years in practice	
1–5	35.2%
6–10	16.4%
11–15	13.3%
16 or more	35.2%
Highest level of staff training	
On the job	31.7%
Seminars and workshops	38.6%
State required	13.8%
Associate's degree in chiropractic technology	15.9%
Number of staff employed	
0	15.1%
1–2	47.6%
3–4	25.9%
5 or more	11.4%
Employ spouse, significant other, family member	
Yes	25.5%
No	74.5%

however, was hypothetical and, to the authors' knowledge, never implemented. The purpose of this study is to determine attitudes of doctors of chiropractic regarding the importance of staff training in specific skill areas to inform the curriculum management process of an existing chiropractic technology program and discuss the resulting modifications.

METHODS

Exemption to conduct this study was obtained from the Palmer College of Chiropractic institutional review board. Following ethical approval, a survey was developed and piloted for clarity and content validity on a small group of doctors of chiropractic not directly involved with the program. The survey was also reviewed by the college's Department of Institutional Planning and Research. The survey was then distributed electronically via SurveyMonkey (Palo Alto, CA) to a convenience sample of all registrants of a chiropractic college homecoming gathering approximately 2 weeks after the event. The survey was prefaced with a statement describing the purpose of the study and explaining that responses would be safeguarded and that respondents would not be identified in the results of this study. Following completion of a homecoming satisfaction survey, respondents were asked if they would participate in an anonymous survey regarding the attitudes of doctors of chiropractic concerning the training of chiropractic clinic staff. Potential respondents were sent up to 4 reminders to complete the survey.

The survey consisted of Likert scale items regarding areas of training for chiropractic staff. Respondents were asked to rate the degree of importance on a 5-point scale that staff members be trained in a specific skill. Twenty-two line items were included. Professional and personal demographic information were also collected.

All data were collected and stored electronically in a Microsoft Excel (Microsoft Corp, Redmond, WA) spreadsheet and safeguarded with passwords. The authors were

not involved in data collection and e-mail usage and therefore were blinded to the data. Data were transferred to SPSS version 19 statistical program (IBM Corporation, Armonk, NY) for analysis. Descriptive statistics were derived for all items. Analysis of variance (ANOVA) was used to test the differences between groups based on number of years in practice (1–5 years, 6–10 years, 11–15 years, 16 or more years) and level of staff training (on-the-job, seminars and workshops, state-required, associate's degree in chiropractic technology). Levene's test of homogeneity of variance was used to determine whether the groups' variances were equal. All statistical tests were considered significant at the 95% confidence interval ($p < .05$).

RESULTS

Surveys were electronically distributed to 859 attendees of the chiropractic homecoming event. Of these 859 potential participants, 35 were returned as being undeliverable, resulting in 824 participants. Of the 824 participants, 176 surveys were completed, resulting in a response rate of 21.4%. The survey included questions about the number of years in practice, highest level of staff training, the number of staff employed, and whether the doctor employs family members or a significant other (Table 1).

Of the 176 doctors that completed the survey, 97.5% rated oral communications to be important or very important. Skills receiving the lowest scores were nutrition and physical examinations, with 45.7% and 51.3% of doctors rating these skills as important or very important (Table 2).

Comparing groups based on years in practice using a 1-way ANOVA revealed differences in the areas of passive physiotherapies, legal issues/regulations, Occupational Safety and Health Administration (OSHA) regulation, and marketing (Table 3). Levene's test of homogeneity of variance was used to determine whether the groups' variances were equal. The results of the Levene's test did not show significant differences, indicating that the 4 groups could be considered equal. Post hoc analysis using Tukey's test revealed that doctors in practice between 1 and 5 years place a significantly higher degree of importance ($p = .019$) on staff training in passive physiotherapy than do doctors in practice 6–10 years. Similarly, doctors in practice between 1 and 5 years place a significantly higher degree of importance than do doctors in practice more than 15 years in the areas of legal issues/regulations, marketing, and OSHA, regulations with p values of .032, .029, and .016, respectively. In addition, doctors in practice 11–15 years place a significantly higher degree of importance on OSHA regulations than do doctors in practice more than 15 years, with a p value of .032.

Using 1-way ANOVA to compare groups based on level of staff training revealed differences in the areas of OSHA regulations and cardiopulmonary resuscitation (CPR; Table 4). Levene's test of homogeneity of variance was used to determine whether the groups' variances were equal. The results of the Levene's test showed that the

Table 2 - Results of Survey Questionnaire

Staff Training Skill	Level of Importance (%)					Rating Mean
	Not Important (1)	Of Little Importance (2)	Moderately Important (3)	Important (4)	Very Important (5)	
X-rays	16.4	8.8	17.0	19.5	38.4	3.55
Active physiotherapy	17.5	11.9	18.8	23.8	28.1	3.33
Passive physiotherapy	16.4	13.2	17.6	24.5	28.3	3.35
History taking	11.8	14.9	13.0	24.2	36.0	3.58
Physical examinations	15.6	18.8	14.4	21.9	29.4	3.31
Patient education	4.3	2.5	6.2	29.8	57.1	4.33
Nutrition	10.5	15.4	28.4	28.4	17.3	3.27
Ethics	2.5	2.5	2.5	20.4	72.2	4.57
Chiropractic philosophy	3.1	1.9	7.5	28.6	59.0	4.39
Insurance billing/coding	4.3	3.1	5.6	23.0	64.0	4.39
Bookkeeping	1.2	2.5	11.2	27.3	57.8	4.38
Scheduling and telephone	0.6	1.9	1.9	21.6	74.1	4.67
Managing patient records	1.2	0.6	1.9	26.7	69.6	4.63
Legal issues/regulations	2.5	4.4	8.8	32.5	51.9	4.27
Computer skills	0.6	1.2	9.3	36.6	52.2	4.39
OSHA regulations	5.1	7.0	22.2	31.0	34.8	3.84
CPR	2.5	10.1	22.6	34.6	30.2	3.80
Electronic health records	5.0	6.9	21.3	28.8	38.1	3.88
ICD-10	4.6	4.6	19.0	31.4	40.5	3.99
Oral communication	0.6	0.0	1.9	17.4	80.1	4.76
Written communication	0.6	0.6	9.3	26.7	62.7	4.50
Marketing	3.1	5.0	25.0	30.0	36.9	3.93

OSHA indicates Occupational Safety and Health Administration; CPR, cardiopulmonary resuscitation; ICD-10, International Coding of Diseases, 10th edition.

variances were not assumed equal; therefore, Brown-Forsythe robust tests of equality of means were performed. Comparison of differences between groups based on level of staff training reveal three areas of significance. Post hoc analysis using Tukey's test revealed doctors who employ chiropractic technologists place a significantly higher degree of importance on staff training in OSHA regulations than do both doctors who employ staff trained through state-required training and doctors who employ staff trained through seminars/workshops, with *p* values of

.011 and .037, respectively. Similarly, doctors who employ chiropractic technologists place a significantly higher degree of importance on staff training in CPR than do doctors who employ staff trained on the job, with a *p* value of .006.

DISCUSSION

The results of this study indicate that doctors place high importance on front-office skills requiring effective communication, such as patient scheduling, telephone procedures, and insurance billing and coding. These results are similar to a previous study in which front-office skills were also highly rated by doctors of chiropractic.⁴ Not surprisingly, doctors also place a high degree of impor-

Table 3 - Results of 1-Way ANOVA Between Groups Based on Years in Practice

Source of variation	df	F	p
Passive physiotherapies			
Between groups	3	3.61	.015
Within groups	155	—	—
Legal issues/regulations			
Between groups	3	3.01	.032
Within groups	157	—	—
OSHA regulations			
Between groups	3	4.27	.006
Within groups	155	—	—
Marketing			
Between groups	3	2.67	.049
Within groups	157	—	—

OSHA indicates Occupational Safety and Health Administration

Table 4 - Results of 1-Way ANOVA Between Groups Based on Staff Training

Source of variation	df	F	p
OSHA regulations			
Between groups	3	4.56	.005
Within groups	122.64	—	—
CPR			
Between groups	3	4.91	.003
Within groups	125.08	—	—

OSHA indicates Occupational Safety and Health Administration; CPR, cardiopulmonary resuscitation

tance on the management of patient records, which, in 2009, was reported as consuming 25.2% of their occupational time in comparison to 13.2% in 2003.⁵ Conversely, the areas that doctors indicate as less important are clinical skills, such as physical examinations, physiotherapy, and nutrition. Interestingly, while physical examinations and physiotherapy are among the lowest-rated skill sets in level of importance, previous data indicate that the areas that chiropractic assistants are commonly utilized are in administering physiotherapy and obtaining patient vital signs.⁵ One potential explanation for this discrepancy is that not all respondents perform physiotherapy. These results may also be explained by the fact that 70.3% of respondents indicate that they employ staff trained on the job or through seminars and workshops rather than through more formal state-required training or degrees in chiropractic technology. However, as more states begin to require specified training in physiotherapy and regulation continues to increase, these attitudes are likely to change.

The passage of the American Recovery and Reinvestment Act of 2009 introduced the Health Information Technology for Economic and Clinical Health (HITECH) Act, which has widespread implications for healthcare providers.⁶ Included among these implications is the establishment of regulations for defining “meaningful use” and technical capabilities required for electronic health records.⁷ Also impacted by the HITECH Act is the Health Insurance Portability and Accountability Act, with the inclusion of the Breach Notification Rule and the introduction of a tiered penalty system that significantly increases penalties for violations.⁸

In addition to these federal regulations, more states are passing legislation requiring staff training in physiotherapy.⁹ For example, since 2009 chiropractic boards in Iowa and the neighboring state of Wisconsin have enacted legislation regulating staff training in physiotherapy.^{10,11} Additionally, the Federation of Chiropractic Licensing Boards, in recognition of this need, has developed certification standards to be adopted on a state-by-state basis.¹² In light of these recent federal and state regulatory changes, it is not surprising that doctors who have been in practice for 1–5 years placed significantly higher importance on staff training in the areas of legal issues and physiotherapy than did doctors in practice in excess of 5 years. This may also explain, in part, why doctors who place a higher degree of importance on CPR and OSHA requirements are more likely to employ chiropractic technologists.

Taking into consideration doctor input, regulatory requirements, accreditation standards, and the overarching needs of the learners, program- and course-level outcomes were reviewed. It was determined by the program curriculum committee that, in most aspects, program curriculum was meeting the needs of stakeholders. However, some areas of disparity were discovered, which lead to curricular revision.

Survey results indicate that doctors place a high degree of importance on patient education; however, there was no specific course-level outcome for this skill. In response, a learning outcome was added to an interpersonal commu-

nications course. The outcomes were also reviewed and revised in the ethics course, another highly rated area, to place a greater emphasis on the application of ethical theory and principles. Important to note is that not all survey findings resulted in change. Nutrition, which rated low in the level of importance, was reviewed but ultimately remained unaltered owing to accreditation requirements. As previously discussed, physiotherapy, also low scoring, remained unchanged owing to increasing regulation.

The most substantial curricular revision occurred in the area of insurance procedures. Weighing not only doctor feedback but also regulatory requirements and continuously evolving coding and billing protocols, several modifications were implemented in an effort to more fully prepare graduates for employment. The 1st of these modifications involved the expansion of insurance content through the restructuring of 1 all-encompassing course to 3 individual courses, each with a targeted area of focus. The 1st of these courses introduces students to fundamental insurance concepts in their 1st trimester of study rather than the 3rd, as was previously the case. The 2nd course focuses on procedure and diagnosis coding with an emphasis on the *International Coding of Diseases*, 10th edition, Clinical Modification (ICD-10-CM) despite survey results indicating that this was not an area of top priority for staff training. However, with the approach of the October 1, 2014, ICD-10 implementation deadline,¹³ these results would likely change if the survey were distributed today. The 3rd course is designed to then allow students to apply the concepts introduced and developed in the previous 2 courses.

Following implementation, the final step in a curriculum management process, collecting and reacting to assessment data, takes place to determine that revisions meet needs. The program curriculum committee shares educational and program effectiveness outcomes with faculty and oversight committees and solicits feedback to determine needs, returning to step one of the assessment cycle.

Limitations to the current study include low response rate, sample size, possible lack of diversity in respondents, and potential bias. Survey response rate is a commonly used indicator of survey quality.^{14,15} Traditionally, low response rates are considered to negatively impact survey quality by introducing nonresponse bias. The response rate of 21.4% in this study, therefore, is lower than preferred. This low response rate may be due to attrition as respondents were asked to take this survey after completing an initial, longer survey for which the response rate was also low. While higher response rates are typically associated with higher quality surveys, various studies have challenged this premise.^{16–18} Some studies have demonstrated that low response rates do not necessarily produce nonresponse bias. Bias may occur, however, if survey respondents differ from nonrespondents with regard to the survey subject of interest.^{19,20} There is no indication that the sample of doctors of chiropractic answering questions on staff training differs in variables that would substantially affect the results of this study. Furthermore, the only similarly published study using a

different sample yielded comparable results with regard to doctor attitudes on staff training.⁴

Another limitation of this study is sample size. Due to the small sample, results may not be generalizable beyond this specific population. Third, surveys sent exclusively to registrants of a homecoming event of 1 chiropractic college may have presumably resulted in a sample consisting largely of alumni from that specific institution. Doctors' attitudes may be influenced by educational background, which, again, impacts generalizability of the results.

Last, it should be noted that the authors are involved in the curriculum development of this program, which may introduce bias to the results. Although the survey was reviewed by peers external to the program and authors were not directly involved with the distribution of the survey or the collection and analysis of data, bias may still exist.

Future studies should employ strategies to increase survey response rate. Distributing a stand-alone survey rather than attaching it to a longer survey may decrease attrition. Additionally, advance notice and additional follow-up surveys should be employed. Consideration should also be given to offering incentives with the goal of improving response rate. Finally, future surveys should be distributed to a larger, more diverse population.

CONCLUSION

In striving to prepare students for careers in the field of chiropractic, educators are challenged by the need to evolve curricula to meet the changes taking place in the healthcare system. The number of studies published on the subject of chiropractic staff training curriculum development is negligible. This study surveyed doctors of chiropractic to determine attitudes concerning the importance of skills performed by chiropractic assistants. Results indicate that doctors tend to place high importance on office skills requiring effective communication while placing less importance on clinical skills such as physical examinations and physiotherapy.

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CONFLICT OF INTEREST

There are no funding sources or conflicts of interest to declare.

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