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ORIGINAL ARTICLE

Preceptor doctors' assessment of the clinical skills of chiropractic externs

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Objective: This study surveyed preceptor doctors' opinions of student competence before and after a chiropractic preceptorship.
Methods: The qualitative and quantitative survey asked doctors about the competence of externs in various skills and asked opened-ended questions about the strengths and weaknesses of the externs. The survey was conducted using a common Web-based platform called SurveyMonkey.
Results: A total of 125 doctors responded to the survey. The doctors tended to agree that they saw a positive change in the skills of the externs over time. Externs presented to the preceptors lacking in confidence and office management skills. The preceptors reported an increase from 2.7 to 3.9 on a 5.0 Likert scale in the students' confidence in adjusting skills during the preceptorship. The preceptor doctors were split on students' preparedness in chiropractic adjusting technique, reporting it as both the strongest and the weakest presenting skill.
Conclusion: Preceptor doctors perceived that their student externs were academically qualified but were weaker in the clinical application of procedures. Results from this survey suggest that the preceptor program can improve the confidence levels and practice management knowledge of chiropractic externs.

Key Indexing Terms: Preceptorship; Training Programs; Chiropractic; Education

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INTRODUCTION

Chiropractic training programs have long histories of arranging preceptor opportunities for senior students. In 1976, Texas Chiropractic College introduced preceptorship training opportunities for its students.[1] Palmer College of Chiropractic, Southern California University of Health Sciences, and presumably other chiropractic schools have also had long histories of arranging preceptor opportunities for senior students; however, a search through the Index to Chiropractic Literature, PubMed, and ERIC uncovered no documentation of this activity. The preceptorship concept is not unique to chiropractic and is well documented in other health care fields, including nursing, pharmacy, physician assistants, and osteopathy. The purpose of this study was to survey if student externs entering a preceptorship were equipped with the skills expected by the preceptor doctors for successful practice and determine if the preceptors found improvement in the students' skills during the preceptorship.

When a senior student works as an extern in the office of a practicing chiropractor in a preceptorship, it serves as a bridge between the academic world and actual practice. Kramer[2] and Cantrell and colleagues[3] have presented information on preceptorships, and Kramer describes the field experience for nursing students as "the shock-like reaction that occurs when an individual who has been reared and educated in that subculture of nursing that is promulgated by schools of nursing suddenly discovers that nursing as practiced in the world of work—it does not operate on the same principles."[2] When theory meets practice, a socialization process occurs, described in the literature as a transition process[4] or a rite of passage.[5] There is reason to believe that this same reality shock takes place in chiropractic students when they leave the womb of chiropractic academia and enter into the realities of chiropractic practice.

The nursing profession's use of preceptorships in training nurses is well documented. A preceptorship can be used to recruit students into nursing[6] and can be a transformative educational experience for students nearing the completion of their nursing educational process. In 3 studies within the nursing field, the preceptorship experience was considered from the externs' perspective rather than the preceptors'perspective,[3,6,7] although 1 study considered the benefits of the experience for the nursing preceptor.[7] Another paper has looked at the physician assistant preceptor.[8] Performance of problem solving, applying theory to practice, and psycho-

motor skills have been rated in new nurses that served as externs and those who did not; graduates who had gone through a preceptorship rated themselves significantly higher on psychomotor performance.[4]

In pharmacy, preceptor development is a key component of experiential education, with preceptors providing 30% of the curriculum.[9] Originally an apprenticeship program, pharmacy moved into academia for standardization of education, and now the apprenticeship aspect has been reintroduced, but under the structure of colleges of pharmacy.[10] Friend, Wertz, Hicks, and Bullups[10] considered pharmacy externs' professional performance using 4 approaches, including a professional growth analysis that measured the difference between pre- and post-externship evaluations. Gains were independent of grade point average.[10]

The preceptor program at Palmer College of Chiropractic is managed by the Clinic Capstone Programs office. Students must complete all clinic requirements, both qualitative and quantitative, before becoming externs in an off-campus practice; the field doctors who serve as preceptors provide an enrichment experience. The preceptorship fulfills the requirement of the 3 final courses the students would take if on the Davenport campus. Externs from the Florida campus are able to participate in their 2 final classes through online courses.[11]

METHODS

In 2009, Kevin A. Rose, DC, of the Los Angeles Chiropractic College, presented a study entitled Preceptor Doctors' Percept of the Clinical Skill of Chiropractic Externs at the Association of Chiropractic Colleges Research Agenda Conference. Rose and Sackett[12] surveyed preceptor chiropractors on what they perceived to be the greatest strengths and weaknesses of student externs at the beginning of the preceptorship and asked them to rate the expected skills of the externs at the end of the preceptorship. Preceptors rated the externs as strong in academic aspects at the beginning, with the exception of spinal adjusting skills. The greatest weaknesses also were as expected: those skills related to running a practice.[12] After he finished his presentation, Dr. Rose was approached by one of our authors about the possibility of replicating his project at our institution. Dr. Rose was agreeable and shared a copy of his presentation. The survey used by Rose and Sackett was used as the foundation of our survey.

After consultation with the director of the Clinic Capstone Programs, our survey was revised to include extra questions that would help determine if externs were performing clinical skills that were consistent with expected skills outlined in the Palmer Chiropractic Abilities, a part of Palmer's Identity Statement developed by its board of trustees. Approval with an exempt status was obtained from Palmer College of Chiropractic's Institutional Review Board. Unlike the Rose and Sackett survey that was surface-mailed, a common Web-based system called SurveyMonkey (Palo Alto, CA) was used for our survey to determine the opinions of participating preceptor doctors. A list of e-mail addresses for 2913 chiropractors that had participated in the Palmer preceptor program since 2006 was obtained from the Clinic Capstone Programs office. These e-mail addresses were loaded into the SurveyMonkey program. The survey was sent to the preceptor doctors, and reminders were sent weekly for up to 3 weeks to those who had not completed the survey.

The survey opened with an explanation of the purpose of the survey, the process of ensuring confidentiality, how the information gleaned would be reported, and that the investigators, although employed by Palmer College, had no direct involvement in the preceptor program. Participation in the survey was considered consent.

We asked 64 questions. The 22 questions that utilized a Likert scale were analyzed by SurveyMonkey, and the qualitative data that was in an open-ended question format was entered into a Microsoft Excel (Microsoft Corp, Redmond, WA) database.

From the lists of perceived strengths and weaknesses, terms that had culturally defined values such as "a couple" (2) or "a few" (3), were assigned those values. Like terms were grouped into categories and assigned values using a consensus process. Single responses that did not fit under the groups were listed under "other." Descriptive statistics were used to determine averages and frequencies.

RESULTS

Of the surveys sent out, 301 were returned with invalid e-mail addresses, 149 had previously established an "opt out" of surveys sent by SurveyMonkey, and 6 opted out in response to our survey. We had 11 respondents who reported that they never had an extern or participated in the preceptor program in any way. Three felt it had been too long since they'd had an extern and therefore felt they could not provide accurate answers, and 2 recipients reported that they were the extern, not the preceptor. Other potential respondents were disqualified after a comparison of deceased alumni with the original list. The final usable tally was 1477 potential respondents. A total of 125 doctors responded to the survey, yielding a response rate of 9.3%, and 72 completed the entire survey. For each question, all the responses were included.

The number of years in practice of participating doctors averaged 21.4, with a range from 5 to 32 years. They reported an average of 238 patient visits per week, with a range of 60 to 800. They reported seeing from 2 to 30 new patients each week, with the average of 8.5.

The doctors had been participating in the Palmer preceptorship program from 1 to 20 years. Most had worked with only 1 or 2 externs, but 1 doctor reported that she or he had worked with 8 externs. The doctors tended to agree that they had seen a positive change in the skills of Palmer preceptors over their time as supervising doctors (3.6 average on a 5.0 Likert scale). Only 27 doctors identified where they received their chiropractic education; most of those were graduates from Palmer Davenport (63%), followed by graduates of Life University and Logan University, each with 11%. Graduates of all other chiropractic colleges made up the remaining 15% of the respondents.

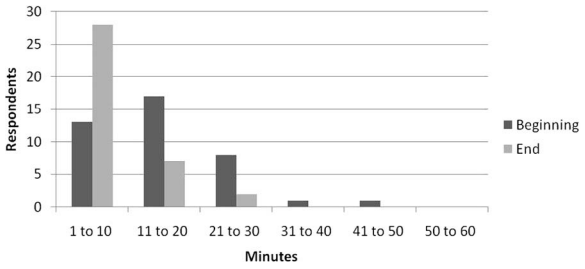

Figure 1 - Comparison of the number of minutes students needed to take a focused case history at the beginning and end of their preceptorship.

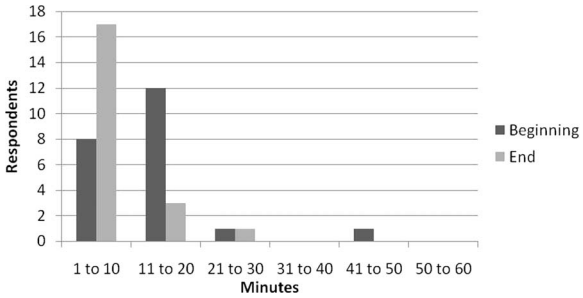

Figure 3 - Comparison of the number of minutes students needed to perform an adjustment at the beginning and end of their preceptorship.

The survey asked doctors to list the top 3 techniques used in their practice. The majority (78%) of preceptor doctors utilized Palmer adjusting procedures in their clinics. We asked about specialty certifications, and 21 of the 27 reported that they held advanced training.

One block of questions asked the preceptors to quantify students' performances in minutes needed to complete a given task at the beginning and end of the preceptorship: taking a focused history (Fig. 1) and a full history (Fig. 2), performing a regional exam and a full physical, and adjusting a patient (Fig. 3). From those who replied, we saw trends in decreased time, which could reflect increased confidence or efficiency. The same trends appear in a reduction of minutes required for administering both regional exams and full physicals.

The section on the competence of graduating externs in various skills yielded results that ranged from 1 (not applicable/not observed) to 5, where 5 indicated strong agreement that the extern was competent in the area (Table 1). Preceptors also rated the externs' confidence in their adjusting skills at the beginning (average score = 2.7 on a 5-point Likert scale) and end (average score = 3.9) of the preceptorship.

Doctors were asked open-ended questions about the strengths and weaknesses of chiropractic externs. Table 2 summarizes the doctors' reported perceptions.

DISCUSSION

Preceptor doctors perceived that their student externs were academically qualified but were weaker in the clinical application of procedures. Technique, as defined by the responding doctor, was both the strongest and weakest presenting skill (Table 2). The increased perceived confidence in adjusting supports Oermann and Navin's[4] findings of increased confidence in psychomotor performance of nurses.

The externs were more enthusiastic than not, but their presenting office management skills needed to be improved. Although not measured, exposure to actual rather than theoretical practice management might enhance the students' awareness in that area, if not their skills.

One of the conclusions that Rose and Sackett[12] reached is that alumni from their institution comprised 70.7% of the respondents. They opined that "chiropractors who graduated from other colleges may have different opinions about the skills of chiropractic students." This study shows similar results for a different set of preceptors.

Rose and Sackett's[12] response rate was three times that of ours. The list of preceptors that we surveyed seemed inflated, but there was no way to ascertain when the

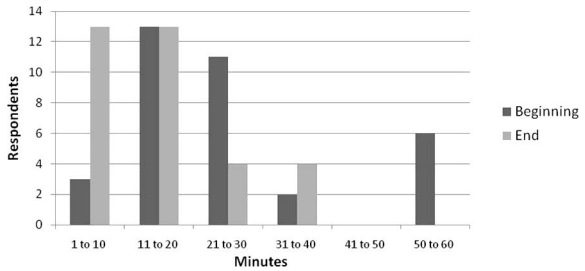

Figure 2 - Comparison of the number of minutes students needed to take a full case history at the beginning and end of their preceptorship.

Table 1 - Average Preceptors' Ratings of Competence of Externs in Selected Skills (5 = Strongly Agree and 1= Strongly Disagree)

Can Develop Exercise Program	4.1
Can Give Wellness Advice	4.0
Able to Choose Adjustive Technique	3.8
Can Develop Rehabilitation Plan	3.7
Can Manage Patient Questions	3.6
Used Subluxation Term	3.6
Can Develop Nutritional Plan	3.4
Understands Front Office Procedures	3.3
Understands Back Office Procedures	3.3
Can Develop Plan for Nutritional Deficiencies	3.2
Can Apply Billing Codes	3.2
Understands Billing Documentation	3.1
Can Manage Patient Objections	3.0
Can Complete Billing Forms	3.0
Understands Explanation of Benefits (EOB)	2.9
Can Ask Patients for Referrals	2.9
Understands Office Overhead	2.6
Understands Leases	2.6
Understands Insurance Denials	2.6
Can Develop and Implement Marketing Plan	2.5

Table 2 - Preceptors' Perceptions of Externs' Skills

	Strength		Weakness	
	No.	%	No.	%
Chiropractic Technique	31	16	31	18
Communication/Patient Interaction	24	13	19	11
Enthusiasm/Willingness to Learn	24	13	6	3
Professionalism/Dedication	23	12	3	2
Exams	17	9	4	2
Education	15	8		
X-ray	14	7	13	8
Diagnosis	13	7	7	4
Philosophy	10	5	5	3
History Taking	4	2	2	1
Treatment/Care Plan	2	1	7	4
Physical Therapy/Rehabilitation	5	3		
Confidence/Experience			19	11
Practice Management			18	10
Patient Management			12	7
Coding/Insurance			11	6
Notes/Reports			6	3
Other	7	4	8	5

doctors on the list were actually involved in the program. Palmer College has been running its Clinic Capstone preceptor program since around 1993 and has some electronic records starting in 2006; there was no way to limit the list by year of participation, so an unknown number of doctors on the list may have retired. We agree with Rose that getting private practitioners to respond to surveys is difficult, in either paper or electronic format, and that "the chief concern with a low response rate is that doctors who responded may have significantly different opinions [from] those who did not."[12] The response rate does not allow for generalization to a larger population but rather reflects only the opinions of those who responded.

We would have preferred to limit our survey to recent participants to lessen recall bias, but that delineation was not available. E-mail addresses were supplied for 1795 of the doctors; lack of inclusion in the contact information could introduce bias in the sample toward more recent interactions, thus lessening the recall bias. Students who participated in the preceptor program have completed the college clinical requirements early, so they may not be representative of the entire class of pre-graduates.

This qualitative research was dependent upon the collective judgment of the investigators and thus very dependent upon our interpretation of the participant's responses. This can lead to bias because of our subjective opinions. In future studies, we will survey the students who took part in these learning opportunities to see if their perceptions are similar to the preceptors' perceptions. We would also like to focus on the benefits to the preceptors, believing that it will help in the recruitment of these valuable adjuncts to chiropractic education.

One of the unexpected positive results of this survey was that the Capstone Programs office expanded the data that they were gathering electronically; thus, when we returned to them for a list of students who participated in the preceptor program, they were able to retrieve recent participants by dates.

The initial survey generated by Rose and Sackett was not tested for reliability or validity, and although we added to it, we also did not test for reliability or validity. Bennett et al[13] analyzed published reports of survey findings and noted that 81% of published surveys lacked details of the validity or reliability of the survey instrument. Other than face validity, our survey falls into that great unvalidated majority.

CONCLUSIONS

The preceptor doctors who responded to this survey perceived that students entering the preceptorship program are weakest in practice management skills and have a lack of confidence in their adjusting skills. An improvement in confidence and/or efficiency over the time of the preceptorship was demonstrated. Literature associated with preceptor programs for the chiropractic profession is lacking. Further studies are necessary in order to establish standardized guidelines for preceptor programs.

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Author Contributions

Concept development: AC. Design: RJRH, RAH. Supervision: RJRH, AC. Data collection/processing: DFG, RJRH. Analysis/interpretation: RJRH, RAH. Literature search: AC. Writing: RJRH, AKC. Critical review: RJRH, AKC, DFG, RAH.

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