EDUCATION
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ORIGINAL ARTICLE

The association between students taking elective courses in chiropractic technique and their anticipated chiropractic technique choices in future practice

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Objective: To assess students' opinions of the potential influence of taking elective courses in chiropractic techniques and their future practice preferences.
Methods: An anonymous, voluntary survey was conducted among graduating students from a doctor of chiropractic program. The survey included questions regarding the chiropractic technique elective courses they had completed and the potential influence of these courses on their chiropractic technique choices in future practice. Surveys were pretested for face validity, and data were analyzed using descriptive and inferential statistics.
Results: Of the 56 surveys distributed, 46 were completed, for a response rate of 82%. More than half of the students reported having taken at least 1 elective course in diversified technique (80%), Cox technique (76%), Activator Methods (70%), or sacro-occipital technique (63%). Less than half of the respondents reported taking technique elective courses in Gonstead or Thompson techniques. More than half of the students stated they were more likely to use Activator (72%), Thompson (68%), diversified (57%), or Cox (54%) techniques in their future practice after taking an elective course in that technique. Females stated that they were more likely to use Activator Methods ($p = .006$) in future practice.
Conclusion: Chiropractic technique elective courses in the doctor of chiropractic curriculum may influence students' choices of future practice chiropractic technique.

Key Indexing Terms: Chiropractic; Manipulation, Spinal; Curriculum; Education

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INTRODUCTION

Chiropractic technique is a general term denoting the collective specific chiropractic methods used by chiropractors in the treatment of patients. Chiropractic technique education is foundational to chiropractic practice. The various components of the chiropractic technique curriculum are designed to provide students with the knowledge, skills, and attitudes necessary to be successful practitioners. Chiropractic technique education provides students with the primary therapeutic tools essential for patient management. The National Board of Chiropractic Examiners[1] has published survey data from doctors of chiropractic several times within the past 25 years regarding their practice methods and preferences, including chiropractic technique preferences. Several published studies have shown a correlation between the undergraduate technique curriculum at a chiropractic college and graduates' technique preferences in practice.[2–4] A study published by Sikorski et al[5] also showed a correlation between the undergraduate chiropractic technique curriculum and students' future practice technique preferences. At Southern California University of Health Sciences (SCU), chiropractic technique core courses include spinal and extremity assessment and manipulation, soft tissue assessment and manipulation, and chiropractic specialized or name techniques. The recently revised curriculum requires students to complete elective courses, known as selectives, including elective courses in chiropractic technique.

Sikorski et al[6] investigated the influence of another technique curriculum change at the same institution, and the results of that study indicated that a change in chiropractic technique education influenced students' future chiropractic technique preferences. We were not able to identify additional literature relating to the influence of curriculum changes or the impact of elective courses at chiropractic colleges on chiropractic technique education. One of the expectations at SCU regarding the inclusion of elective courses in chiropractic technique was that it would afford students the opportunity to make more-informed choices about their future chiropractic

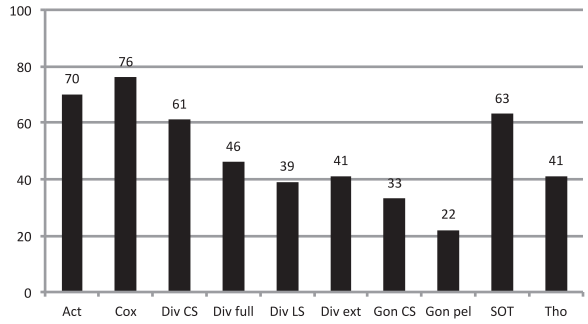

Figure 1 - Percent of students who completed each elective course. Abbreviations: Act, Activator; Div CS, diversified cervical spine; Div full, diversified full spine; Div LS, diversified lumbar spine; Div ext, diversified extremities; Gon CS, Gonstead cervical spine; Gon pel, Gonstead lumbar/pelvis; SOT, sacro-occipital; Tho, Thompson.

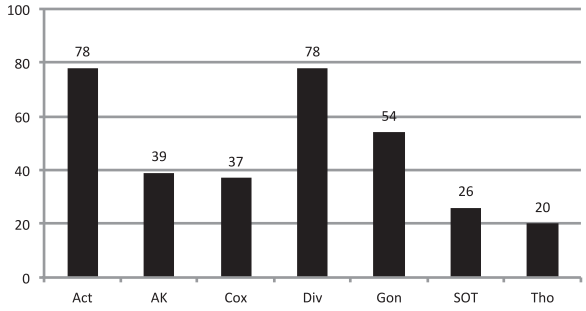

Figure 2 - Percent of students' future practice technique preference. Abbreviations: Act, Activator; AK, applied kinesiology; Div, diversified; Gon, Gonstead; SOT, sacro-occipital; Tho, Thompson.

practice technique. The objective of this study was to assess students' opinions of the potential influence of these elective courses on their future practice preferences. The hypothesis was that the chiropractic technique elective courses would be associated with students' likely future practice preferences.

METHODS

We conducted an anonymous and voluntary survey of our students (approved by the SCU institutional review board) at the end of the last term of their chiropractic education in the year 2015. This cohort was the first set of students who completed the revised curriculum with a full complement of elective courses. The survey was administered to all students present at the graduation rehearsal. The survey included questions regarding gender, the chiropractic technique elective courses completed, and the potential influence of these courses on future chiropractic practice technique choices. For the purposes of our study, chiropractic technique was defined as any adjustive and/or assessment procedure. The survey was pretested for face validity prior to its administration through a review process conducted by technique and research faculty at our university. All data were analyzed using SPSS for Windows version 24 (IBM Corporation, Armonk, NY) using descriptive and inferential statistics.

RESULTS

Of the 56 surveys distributed, 46 were completed, for a response rate of 82%. Of the respondents, 37% were female.

Student Enrollment in Technique Electives

Among the chiropractic technique elective courses offered were 4 courses in diversified technique (cervical spine, full spine, lumbar spine, and extremities), 2 in Gonstead technique (cervical spine lumbar spine and pelvis), and 1 each in Activator Methods, Cox technique, sacro-occipital technique (SOT), and Thompson technique. No applied kinesiology (AK) elective course was offered when the survey respondents were students. The number of technique electives completed by the survey respondents ranged from 0 (1 respondent) to 10 (2 respondents), and the mean was 5. More than half of the students reported having taken at least 1 of the 4 diversified elective courses (80%), the Cox course (76%), the Activator course (70%), and the SOT course (63%). Less than half of the respondents reported taking any of the other technique electives; 46% took at least 1 of the Gonstead courses and 41% took the Thompson course (Fig. 1). Due to the sampling methodology, the respondents were able to select from multiple technique elective courses, which were not independent. Therefore, statistical significance between the groups could not be tested with χ^2 analysis.

Student Future Practice Preferences

Regarding the students' future practice technique preferences, the 3 most preferred were Activator, diversified and Gonstead techniques. All the remaining technique choices were preferred by less than 50% of the respondents, including AK, Cox, SOT and Thompson (Fig. 2). Due to the sampling methodology, the respondents were able to select multiple techniques and the technique groups were not independent, which does not fulfill the assumptions for χ^2 analysis. For this reason, statistical significance between the groups could not be measured.

There was a significant difference based on gender; 100% of the female respondents were more likely to utilize Activator technique in their future practice vs 66% of the male respondents (χ^2 [1, $n = 46$] = 7.49, $p = .01$). There was no sex difference for any other technique (AK, χ^2 [1, $n = 46$] = 0.71, $p = .40$; Cox, χ^2 [1, $n = 46$] = 1.18, $p = .28$; diversified, χ^2 [1, $n = 46$] = 0.26, $p = .61$; Gonstead, χ^2 [1, $n = 46$] = 0.02, $p = .88$; SOT, χ^2 [1, $n = 46$] = 0.16, $p = .69$; Thompson, χ^2 (1, $n = 46$) = 1.66, $p = .20$; Fig. 3).

More than half of the respondents said that their choice to use the Activator, Thompson, diversified, or Cox techniques in their future practice was more likely after taking an elective course in that technique. Less than half reported they were more likely to practice Gonstead and SOT (Fig. 4).

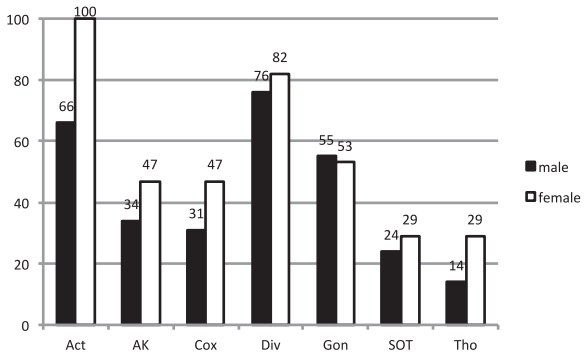

Figure 3 - Percent of students' future practice technique preference based on gender. Abbreviations: Act, Activator; AK, applied kinesiology; Div, diversified; Gon, Gonstead; SOT, sacro-occipital; Tho, Thompson.

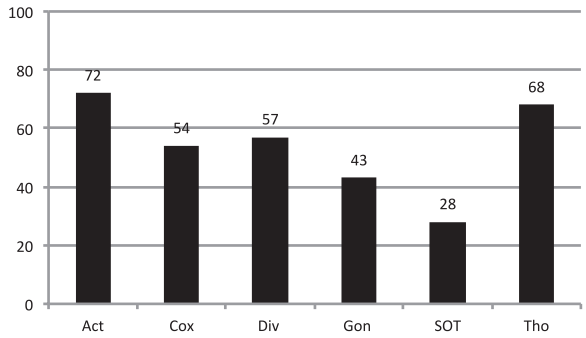

Figure 4 - Percent of students more likely to practice technique after taking elective course. Abbreviations: Act, Activator; Div, diversified; Gon, Gonstead; SOT, sacro-occipital; Tho, Thompson.

The following associations between specific technique elective courses taken and changed likelihood of future practice of that same specific technique were not statistically significant: Activator (χ^2 [1, $n = 46$] = 0.55, $p = .46$); Cox (χ^2 [1, $n = 46$] = 0.00, $p = .96$); diversified (χ^2 [1, $n = 46$] = 0.00, $p = .97$); Gonstead (χ^2 [1, $n = 46$] = 0.12, $p = .73$); SOT (χ^2 [1, $n = 46$] = 0.16, $p = .69$); Thompson (χ^2 [1, $n = 46$] = 2.97, $p = .085$).

DISCUSSION

The National Board of Chiropractic Examiners has surveyed doctors of chiropractic regarding practice treatment procedures 5 times over the last 25 years. The last published data (2005) on chiropractic technique utilization indicated that diversified was the most commonly utilized technique in practice (96%), followed by Activator (70%), Thompson (61%), Gonstead (57%), Cox (57%), SOT (50%), AK (38%), and others.[1]

Studies conducted among practicing doctors of chiropractic revealed that there are positive correlations between chiropractic students' technique education and their future technique utilization.[2–4] A study by Sikorski et al[5] conducted on chiropractic students also indicated positive correlations between chiropractic students' undergraduate education in technique and their future plans to use the technique in their practice. Both doctors of chiropractic and chiropractic students agree on the positive influence of technique education on technique preference.

The statistically significant difference between male and female respondents' future practice preference for Activator technique in this study may be because Activator technique is less physically demanding when performing adjustments. However, we could not identify any literature to support this assertion.

Sikorski et al[6] investigated changes in chiropractic technique education and the potential influence on students' future practice technique preferences; the results indicated that changes in technique curriculum had an influence on practice technique choice. This study was conducted among second- and third-year chiropractic students who had completed a course that introduced students to various chiropractic techniques, many of which were later offered as technique selective courses, such as the ones considered in the present study. The technique survey course consisted of 1 hour of lecture and 2 hours of lab instruction on each technique. Students who took the chiropractic technique survey course in their second year were more likely to change their future practice technique preference (60%) than students who had taken the survey course in their third year (33%). These differences were statistically significant ($p < .05$; $n = 76$ second-year, $n = 28$ third-year, $F = 41.593$, $p < .000$).

The curriculum at our institution requires each student to complete approximately 500 hours of elective courses to graduate from the doctor of chiropractic program. This requirement represents about 10% of the total curriculum and includes subjects such as chiropractic technique, business, physical rehabilitation, sports medicine, yoga, and Eastern medicine. The addition of the elective courses required a reduction of total hours in the preclinical curriculum, including the technique curriculum. The total preclinical technique curriculum hours were reduced by 18%, and the technique lab hours were reduced by 22%. The core technique taught in the preclinical curriculum is diversified technique.

Although students are not required to take electives in any specific category, informal surveys have revealed that historically students are most interested in elective courses in chiropractic techniques and business. In addition, enrollment data have shown that technique elective courses are the most attended. The elective courses, including those in chiropractic technique, can only be taken by students during the second half of their chiropractic education because of the requirement that students first complete core prerequisite courses and the limited time available in the curriculum.

Prior to the inclusion of elective courses, Sikorski et al[5] investigated the influence of students' participation in technique clubs and technique seminars, their experience with chiropractic practitioners, and the impact of the preclinical chiropractic technique curriculum on students' choice of future practice technique. The results indicated that the preclinical chiropractic technique curriculum had the greatest influence on students' choice of future

chiropractic technique. The current survey results are similar to those of Sikorski et al[5] regarding these future practice chiropractic technique preferences and to those of practicing doctors of chiropractic, based on surveys by the National Board of Chiropractic Examiners.[1] The results of the present study are also similar to results published regarding graduates from other chiropractic colleges.[2–4] In addition, the chiropractic technique elective courses, possibly because of their "hands-on" nature and their location within our curriculum, seem to have a more-profound influence on students' practice preferences. This may be a reason why this cohort selected diversified technique as their future practice choice.

There may be other factors which influence students' choice of future practice technique. Future studies could assess the influence of technique club participation, instructor passion in the technique, availability of the elective courses, the use of mechanically assisted methods to reduce risk of injury, the rigor of the course, and experiences with practicing doctors.

Another study by Sikorski et al[6] showed that a curriculum change—moving the course that introduced students to various chiropractic techniques earlier into the curriculum—had an influence on more than half of the student respondents' choice of future practice technique. However, in the same study, less than half of the survey respondents indicated that the technique survey course itself had this influence. This difference in outcome between the 2 surveyed cohorts may be attributed to the experience of the second cohort with the elective courses. The introductory technique course devotes 1 hour of lecture and 2 hours of practical lab activity for each technique presented, while each technique elective course is typically 15 hours of practical lab activity presented in a technique seminar format over 1 weekend. This outcome is consistent with the notion that chiropractic students value practical, hands-on educational experiences.

Chiropractic technique is the primary therapeutic intervention employed by practicing chiropractors and, as such, is an indispensable part of chiropractic curricula. Based on our results, other chiropractic programs may consider the inclusion of elective technique courses as a compliment to students' clinical education experience.

Limitations

This study was retrospective and may include recollection bias. The survey was administered to only 1 cohort of students just prior to their graduation from 1 chiropractic program. Finally, the respondents may have variously interpreted the meaning of certain words and phrases in the survey questions.

CONCLUSION

Chiropractic technique elective courses in the doctor of chiropractic curriculum appeared to have an influence on students' choice of future practice chiropractic technique preference. However, there may be other influencing factors that require further study.

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Concept development: PW, DS, AK, GT. Design: PW, DS, AK, GT. Supervision: PW, DS, AK, GT. Data collection/processing: PW. Analysis/interpretation: PW, DS, AK, GT. Literature search: PW, DS, AK, GT. Writing: PW, DS, AK, GT. Critical review: PW, DS, AK, GT.

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