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## ORIGINAL ARTICLE

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### A survey of chiropractic students' perceived business preparedness at graduation

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**Objective:** The objective of this study was to assess chiropractic college graduates' business experience, education, and need for further education at the time of graduation.

**Methods:** We conducted an anonymous survey of graduating chiropractic students in 2015 and 2016 regarding their prior business experience, business courses taken before and during chiropractic education, business abilities and needs, and practice plans.

**Results:** Eighty-one responded out of 114 surveyed (71% response rate). Less than half had taken college-level business courses or had business experience prior to entering chiropractic college. Almost 90% of respondents took 1 or more of 3 elective courses in business skills during their chiropractic education. Sixty-eight percent planned to work as an associate doctor and to be in private practice after 5 years. The respondents indicated that they were more prepared in the business abilities of ethics/risk management/jurisprudence, employee management, strategic planning, and marketing/advertising, and least prepared in business operations, accounting, and billing/reimbursement. In the areas of economics, finance, business taxes, and starting a practice, the respondents indicated a need for further education or experience. It was statistically significant ( $p < .001$ ) that students who had prior business experience and/or college business education were more confident in operating a health care practice.

**Conclusion:** Chiropractic business education provides students with some of the practice management skills essential for operating a health care practice. Students with prior business experience and/or education reported more confidence in their ability to run a chiropractic practice immediately after graduation.

**Key Indexing Terms:** Chiropractic; Education; Curriculum; Practice Management

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## INTRODUCTION

Business knowledge is essential for success in chiropractic practice. Various components of a chiropractic curriculum are designed to provide students with the knowledge, skills, and attitudes necessary to be successful entrepreneurs. Chiropractic business education should provide students with the primary practice management skills essential for operating a health care practice.

The National Board of Chiropractic Examiners has published survey data from doctors of chiropractic several times within the past 25 years regarding their practice methods and preferences, including the percentage of time spent on business-related activities. The most recent survey conducted in 2014 and published in 2015<sup>1</sup> indicated that approximately 17% of a practitioners' time was spent on business management activities, which is an increasing trend since the question on business management activities was first asked in the 1998 survey.

A chiropractic associateship provides the opportunity for recent graduates to hone their clinical and business

skills prior to entering their own private practice. Surveys conducted by the National Board of Chiropractic Examiners (NBCE) from 1991 to 2009 also include a question regarding whether practitioners had an associateship prior to full-time practice. The survey results indicate an increasing trend from approximately 33% in 1991 to nearly 50% in 2009.<sup>2</sup>

In 2009 Davis et al.<sup>3</sup> published a descriptive study based on data from the Medical Expenditure Survey, the National Center for Education Statistics, and the US Bureau of Labor Statistics indicating that patient expenditures for chiropractic care increased between 1996 and 2005. However, the number of chiropractic graduates and the income of chiropractors in the United States declined during this same time. These outcomes may indicate the need for improved practitioner business skills. In addition, several other published studies have surveyed students and graduates of chiropractic colleges regarding their business acumen.<sup>4–8</sup> 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 business education.

The core business/practice management curriculum (based on a 10-term schedule) at our institution at the time of our survey included the courses listed in Table 1.

A rationale for this current study was derived from surveys conducted at our institution. Informal surveys at the time of the entrance into the doctor of chiropractic program indicated that a significant percentage of students had prior business experience and or family members in health care practice. Additionally, informal surveys of graduating students from the doctor of chiropractic program consistently identified business courses as a need of the program. One of the responses to these informal surveys was the development of selective/elective courses in business and practice management (Table 1).

The objective of this study was to determine chiropractic college students' specific business abilities and their need for additional training at the time of graduation. This study also explored the correlation between students' prior business experience and/or college-level business education on their confidence to operate a health care practice. Our hypothesis is that students who have completed our core business curriculum and who have completed 1 or more elective courses will be confident to operate a health care practice at the time of graduation. The results from this study may provide the rationale for curriculum revision.

## METHODS

We conducted an anonymous and voluntary survey of 2 cohorts of students who had completed the doctor of chiropractic curriculum and participated in the graduation rehearsal in December 2015 and April 2016. Both cohorts matriculated through an identical curriculum with identical faculty. All graduating students present for the graduation rehearsal were asked to complete an online survey administered using Survey Monkey. The administration of the survey was supervised by 1 of the coauthors of the project. Power Point (Microsoft Corp, Redmond, WA) slides were used to explain the purpose of the survey, to provide the survey link, and to inform the graduates that their participation was voluntary. Time was allotted during the rehearsal proceeding to complete the survey. The study was approved by the Southern California University of Health Sciences institutional review board.

The survey did not identify respondents by age, gender, or ethnicity. The study included questions about prior business experience, business courses taken before and during chiropractic education, areas of business abilities and needs, and practice plans. The areas of business abilities and needs were adopted from a study by Henson et al.<sup>4</sup> Respondents were asked to rank their business needs for further education from most needed (1) to least needed (11). Table 2 indicates where in our curriculum these business abilities are addressed. Validation of the survey was performed prior to its administration through a peer review process conducted by practice management faculty and the Office of Institutional Effectiveness.

All data were analyzed using SPSS for Windows version 24 (IBM Corp, Armonk, NY) using a variety of statistical techniques. Quantitative data were analyzed and explored descriptively using percentages or other measures of central tendency and dispersion. The data were comparatively analyzed using a variety of inferential tests, including regression analysis and analysis of variance (ANOVA).

## RESULTS

The survey was distributed to 114 graduating students and 81 responded, a response rate of 71% (calculated margin of error of plus or minus 5.34%). Thirty percent of respondents had 1 or more years of business experience, and 47% had taken at least 1 college-level business course prior to enrolling in chiropractic school. Forty-one percent indicated that they had a close family member who owns a health care practice, and 88% of the respondents took 1 or more of 3 elective courses in business skills. Of these, 69% took Beginning Field Experience, 68% Student Field Observation, and 19% Introverted Chiropractor's Advantage during their chiropractic education. Sixty-eight percent of the respondents indicated that they planned to work as an associate doctor after graduation, and more than 90% planned to be in private practice after 5 years. Confidence in the various aspects of business abilities are listed in Table 3.

As was determined by ANOVA, there was a significant amount of variance in students' confidence in running a practice based on predictor variables of prior business experience, family in health care practice, and prior college-level business courses ( $p = .004$ ). Results of the regression analysis about the respondents' confidence in their ability to operate a health care practice are presented in Table 4, showing significant association with prior business experience and college-level business courses.

Respondents were less likely to work as an associate doctor after graduation if they had prior business experience (Table 5), had run a business (Table 6), or had college-level business courses (Table 6). For every 1 year increase in experience of running a business, there was a 13% decrease in students' plans to work as an associate doctor to gain experience. For every 1 course increase in the number of college-level business courses taken, there was a 17% decrease in students' plans to work as an associate doctor.

There was a statistical significance in the respondents' confidence in their ability to operate a health care practice and their plan to start their own practice after graduation (Bonferroni post hoc test:  $p < .001$ ). However, there was no statistical significance found regarding the respondents' plans to be in practice after 5 years and respondents' prior business experience or number of college-level business courses prior to entering chiropractic college.

## DISCUSSION

The 2018 Council on Chiropractic Education (CCE) Standards<sup>9</sup> state a need for practice management-related

**Table 1 - Business/Practice Management Course Information (the First 6 Are Required Courses and the Last 3 Are Selective/Elective Courses)**

Term	Course Title, Units, Hours	Course Description
Term 1	Introduction to Ethics and Professional Behavior (Intro. to Ethics) (1 unit/15 hours)	This online course introduces the student to the fundamental concepts of ethics in a health care education environment. The purpose of the course is to increase the awareness of ethics as a student in a health care profession. It is designed to enable the student professional-in-training to develop a personal baseline for the skills necessary for the successful interpersonal patient and colleague relations. It is also intended to assist the student in resolving ethical dilemmas by applying problem-solving techniques.
Term 6	Ethics in Complementary and Alternative Medicine (Ethics in CAM) (1 unit/15 hours)	This course is designed to increase the student's awareness of the common ethical issues faced in Complementary and Alternative Medicine (CAM). It focuses on the responsibilities of CAM providers and covers various problem-solving techniques that may be useful in resolving the variety of ethical dilemmas faced by today's health care practitioners. The course is delivered using a lecture and/or a distance-learning format.
Term 7	Practice Management I (PM I): Risk Management & Jurisprudence (2 units/30 hours)	This course is designed to teach the management skills required to minimize legal liability in practice. The focus of this course is on medical-legal issues including, but not limited to: patient documentation, doctor liability, legal obligations and responsibilities, and malpractice. Strategies for sending and receiving inter- and intraprofessional collaborative care and referrals are presented.
Term 8	Practice Management II (PM II): Starting into Practice (2 units/30 hours)	This course introduces the student to the processes involved in preparing to open a chiropractic practice. These include, but are not limited to, analyzing locations and area demographics, creating an organized practice plan, selecting furnishings and equipment, developing various financial accounting systems, networking with other health care providers, communicating with patients, and developing an internal and external marketing plan. Also covered are the options of associate positions and the purchase of an existing practice. The teaching formats used include lecture, out of class assignments, plus large and small group discussions.
Term 8	Practice Management III (PM III): Billing and Coding (1 unit/15 hours)	This course exposes the student to the various forms of reimbursement available to practicing chiropractors and the billing requirements unique to each. The course covers private pay options, insurance billing, workers' compensation, and personal injury cases. The material is presented in lecture format with guest speakers contributing to the various areas of their expertise.
Terms 8–10	Private Practice Rotation (PPR) (hours varied)	Students complete their clinical training by working closely with an experienced private practitioner who serves as a clinical teacher, role model, and mentor. Students learn firsthand about realities of private practice, including the important skills needed to run a successful practice and business.
Terms 4 and 5	Student Field Observation (SFO) (1 unit/15 hours)	Students are offered a selective course that allows them observation time in certified field doctors' offices. The student's participation is limited to observation of the various clinical/office activities and assisting the doctor with note taking. Students are not allowed to perform any clinical assessment or treatment of patients as this selective course was designed to give the students exposure to a clinical setting.
Terms 6 and 7	Beginning Field Experience (BFE) (1 unit/15 hours)	Students who have passed all history taking, physical, orthopedic, and neurological exam courses, may take this selective course. The student's participation during this course is limited to observation of the various clinical/office activities and assisting the doctor with history taking, physical, orthopedic, and neurological examinations, as well as note taking.
All Terms	Introverted Chiropractor's Advantage (1 unit/15 hours)	This selective course was designed to help students develop marketing techniques essential to creating and building a chiropractic practice. Specific strategies are presented to enhance the communication abilities of students with a focus on practice promotion.

**Table 2 - Essential Areas of Business Abilities Covered in Core Curriculum Courses**

Business-Related Abilities	Intro. to Ethics	Ethics in CAM	PM I	PM II	PM III
Accounting				X	X
Business operations				X	X
Economics				X	
Employee management		X	X	X	
Finance				X	X
Marketing/advertising				X	
Business taxes				X	
Billing/reimbursement			X	X	X
Starting a practice				X	
Strategic planning				X	
Ethics/risk management/jurisprudence	X	X	X	X	X

CAM = complementary and alternative medicine; PM = practice management.

education in ethics, jurisprudence, and record keeping in accredited curricula; however, no specific business courses are prescribed.

In 2008 Henson et al<sup>4</sup> conducted a study among 411 practicing chiropractors to assess their current levels of business skills and their need for additional skills. The survey asked doctors to rate the importance of 8 business areas: accounting, finance, marketing, legal and ethical issues, organizational behavior and human resources, operations and systems management, managerial decision making, strategic management. Although the response rate was low (16%), the study results indicate that current

training and education programs are not providing adequate business skills. This study's respondents indicated that the business areas with the greatest gap in need versus knowledge are accounting, marketing, and finance. Our survey results similarly identified accounting and finance as 2 areas of greater need for further educational training (Table 3).

In 2010 Gleberzon<sup>5</sup> contacted faculty members at accredited chiropractic colleges who were teaching courses in business and jurisprudence and requested course syllabi to determine the topics covered. Two-thirds of the colleges responded, including our institution. The results indicated that there were 62 different topics offered. The most common areas were business plan creation, ethics and codes of conduct, and employee management. Our university offers courses that include business plan creation, ethics and codes of conduct, and employee management, and the results of our current study indicate that our students feel relatively well prepared in topics related to ethics and codes of conduct and employee management and somewhat prepared in the area of business plan creation/starting a practice (Table 3).

Mirtz et al<sup>6</sup> surveyed 1739 individuals participating in an online chiropractic forum to assess attrition attitudes of nonpracticing chiropractors. They received 70 valid responses and reported that the majority of respondents had participated in an associateship after graduation. The respondents also identified practice ethics, overhead expenses, and student loans as contributing factors in practice success or failure. Similarly, the current study results also indicate that the majority of respondents intend to work as associates immediately after graduation. We did not, however, inquire whether our graduates had concerns about the financial risks. Our graduates indicated that they are most confident about business ethics (Table 3).

Gleberzon et al<sup>7</sup> conducted a workshop at the Association of Chiropractic Colleges Research Agenda Conference in 2011. Participants identified high student loan debt, new graduates' needs for immediate gratification, poor role modeling by mentors, and private practice management programs as factors that influence practice behavior and success. Participants agreed that there was a need for business courses in core curriculum to improve practice management skills and ethical behavior. Our

**Table 3 - Perceived Need for Further Education, Listed in Descending Order from Those Reportedly Needed Most (Lowest Average Number) to Those Needed Least (Highest Average Number)**

Area of Business Knowledge	Average Ranking
Business operations (organizing and managing the day-to-day activities of a business)	3.7
Accounting (the process of recording, reporting and analyzing business financial transactions)	3.9
Billing/reimbursement (collecting payment for services rendered)	3.9
Finance (the process of acquiring, investing and managing business resources)	4.3
Business taxes (managing required business, employee, and personal taxes)	4.5
Economics (managing business income, expenses, and resources)	4.6
Starting a practice (the steps involved in opening a health care practice)	4.8
Employee management (obligations and responsibilities associated with being an employer)	6.2
Strategic planning (setting business goals and objectives)	6.2
Marketing/advertising (the processes involved in supplying and promoting a practice)	6.2
Ethics/risk management/jurisprudence (protecting your practice and professional license)	7.1



**Table 4 - Coefficients and Significance of Listed Predictors on Confidence to Operate a Health Care Practice<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
	B	Std. Error	Beta	t	p	Tolerance	VIF
1 (Constant) <sup>b</sup>	3.028	.433		6.989	.000		
@2	.105	.047	.241	2.260	.027	.961	1.041
@3	-.071	.243	-.032	-.291	.772	.930	1.075
@4	.101	.041	.265	2.432	.017	.919	1.088

B, Beta; VIF, variance inflation factor.

<sup>a</sup> Dependent variable: Confidence to operate a health care practice.

<sup>b</sup> Predictors: (Constant): @2 Prior business experience, @3 family in health care practice, @4 prior college-level business courses.

study results are consistent with the findings of this workshop. Our business practice management core curriculum prior to graduates' intern experience appears to provide a strong educational experience in the areas of ethics, marketing, strategic planning, and employee management. However, these students identified business operations, accounting, and billing reimbursement as areas of additional educational need. These subjects are covered in our external private practice rotations; however, the experiences vary from intern to intern depending on which private practice experiences they choose to participate in.

In 2011, Lorence et al<sup>8</sup> conducted a survey of students from Palmer College of Chiropractic-Davenport to describe their financial knowledge, habits, and attitudes. The survey was administered to 250 students enrolled in business courses during trimesters 1, 7, 8, 9, and 10. Only 57 students completed the survey, for a response rate of 23%. This study's results indicate that 77% of the respondents do not plan to start a practice within the 1st year after graduation. The authors also concluded that chiropractic students may require a broader foundation of financial knowledge and the development of personal financial skills to support practice success. Our survey, which questioned students just prior to graduation, similarly indicated (78%) that they did not plan to start a practice immediately after graduation.

Data gathered from NBCE surveys<sup>2</sup> conducted between 1998 and 2014 have indicated an increase in the amount of time spent by practicing chiropractors in business-related activities, from an average of just under 13% in the earlier surveys to approximately 17% in more recent surveys. Practicing chiropractors are spending a greater amount of

their practice time in business management (personnel, marketing, etc.) activities to support their clinical practice, indicating that business education during their chiropractic program may provide graduates with skills that are essential for successful practice.

Most respondents to our survey indicated that they have some level of experience in operating a business and/or business education prior to enrollment in the chiropractic program. Our analysis supports the correlation between college business courses and business experience with respondents' confidence in operating a health care practice.

While approximately 40% indicated that they have a close family member who owns a health care practice, the depth and breadth of this exposure and knowledge may vary from student to student. Though there is no statistically significant result between this exposure and their confidence in operating a health care practice, further investigation is needed to evaluate the extent of this exposure on the students' business/practice management knowledge.

NBCE surveys from 1991 to 2009<sup>2</sup> also include a question regarding whether practitioners had an associate-ship prior to full-time practice. These results indicated an increasing trend of those practicing as associates at the time of the survey from approximately 33% in 1991 to nearly 50% in 2009. Sixty-eight percent of our survey respondents indicated that they plan to work as an associate doctor after graduation. Ninety percent of our survey respondents also indicated a plan to be in their own private practice 5 years after graduation. This may suggest a significant trend among graduates to work as an associate doctor to gain more practice experience after graduation. This also suggests a need for more extensive business and practice management education prior to graduation to help to increase their confidence to enter directly into private practice.

### Limitations

This study was retrospective and may include recollection bias. The survey was administered to only 2 cohorts 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. Definitions of the business abilities

**Table 5 - Regression Analysis of Variance of Listed Predictors on Plans to Work as an Associate After Graduation<sup>a</sup>**

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	31.149	3	10.383	10.310	.000 <sup>b</sup>
Residual	77.542	77	1.007		
Total	108.691	80			

Sig., Significance.

<sup>a</sup> Dependent variable: Plan to work as an associate after graduation.

<sup>b</sup> Predictors (constant): Prior business experience, family in health care practice, prior college-level business courses.

**Table 6 - Coefficients and Significance of Listed Predictors on Plans to Work as an Associate After Graduation<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta				Tolerance	VIF
1	(Constant) <sup>b</sup>	4.519	.420		10.760	.000		
	@2	-.133	.045	-.289	-2.939	.004	.961	1.041
	@3_Numeric	-.078	.235	-.033	-.330	.743	.930	1.075
	@4	-.165	.040	-.412	-4.104	.000	.919	1.088

<sup>a</sup> Dependent variable: Plan to work as an associate after graduation.

<sup>b</sup> Predictors (Constant): @2 Prior business experience, @3 family in health care practice, @4 prior college-level business courses.

queried were included in the survey instrument to minimize this limitation.

## CONCLUSION

The chiropractic business curriculum at our institution provides students with some of the primary practice management abilities essential for operating a health care practice. Students who report prior business experience and/or business education show a statistically significant correlation with their confidence to run a chiropractic practice immediately after graduation.

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