

Professional attitudes regarding research – changing the culture one student at a time

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Introduction

The Standards of the Council on Chiropractic Education include Clinical Competencies related to research.¹ These competencies can be found under the Professional Issues section of the competencies and include two attitudinal and one skill based competency. The introduction to these Professional competencies states in part:

It is important that doctors of chiropractic maintain knowledge and clinical skills through continuing education, and be able to access, understand and critically evaluate the research literature.

The competencies are:

Attitudes

Acknowledge the societal obligation of the profession to produce research, and appreciate the importance of research in education, clinical practice and to the growth of the profession;

Have a desire and an ability to critically evaluate new and current knowledge.

Skills

The student must demonstrate an ability to:
Critically review clinical research literature.

Attitudes in the profession towards chiropractic research, infrastructure, funding and opportunity seems to have increasingly become a subject of discussion. In perhaps the most detailed evaluation and critique of the topic Flanagan and Giordano discuss the role of the institution in developing clinicians and researchers as well as review the demography of faculty involved in research at chiropractic institutions.² Their survey of 15 North American chiropractic colleges revealed that only 5% of full time faculty who hold the DC degree were actively involved in research. In addition, the survey revealed that only 10% of PhD and 25% of DC/PhD faculty were engaged in research. The authors suggest that chiropractic programs have failed to produce opportunities for faculty as researchers, and they advocate for greater institutional and

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professional support of research within the schools and the profession.

In terms of the impact on students they encourage curricular integration of research methods courses that are directed towards active participation in research and publication of projects. They argue that such activity will help the student feel part of the larger academic and scientific community. They encourage the mindset that clinicians "... must actively participate as an independent researcher, treating every patient as a viable study with an N = 1."

Issues of institutional support for the conduct of scholarship and the role of research, embodied by the missions of chiropractic institutions play a key role in empowering faculty and encouraging a commitment on the part of faculty to engage in the work of the institution. Henkin and Marchiori did a survey to explore empowerment and organizational commitment of chiropractic college faculty and contend that committed faculty will identify with and work towards the mission, values, and goals of the institution.³ Their paper implies that if faculty believe the institution is promoting empowerment and there is evidence that this is actually happening then faculty will be more inclined to take risks and engage in behavior that is supportive of the institution.

In a related paper, Marchiori and Henkin (2003) state: "The chiropractic profession depends on a motivated faculty for continuous quality improvement and innovation in areas of curriculum, scholarship and practice."⁴ Interestingly, the authors report that the most significant empowering factor was *where* the faculty were assigned. Those involved in administration or research reported greater levels of empowerment. Related to the issue of chiropractic faculty's engagement in research activities is that of the 609 respondents to their survey less than 3% of faculty were assigned to research tasks while over half of the respondents were assigned to the area of patient care within teaching clinics.

Certainly, if chiropractic college faculty are not engaged in research, unfamiliar with it, or worse – have negative attitudes towards it – this is sure to be reflected in the attitudes of students. Making matters worse, these attitudes may tend to carry over into their professional careers and feed a vicious cycle.

Zhang conducted a survey of chiropractic college students on their attitudes towards research.⁵ He reported:

- Just over 50% of students were interested in research in general.
- Just over 70% felt that research was important.
- 90.32% had experienced something interesting in chiropractic and wanted to know more about it.
- 64.52% had thought about a chiropractic research topic.
- 67.75% agreed that there are many things that need to be researched in chiropractic.
- 45.16% thought basic research technique and statistics should be taught in chiropractic college.
- 61.29% would participate in chiropractic research if given the opportunity while in chiropractic college.
- 19.36% thought research training should be a requirement in chiropractic college.

Newell and Cunliffe conducted a similar study of 119 chiropractic students and their attitudes about research.⁶ Their study revealed:

- 77% had a previous higher education qualification with 44% having some experience with research.
- 54% thought that research, in general, was difficult.
- 64% thought research to be interesting.
- 75% considered chiropractic research necessary.

Student attitudes and skills towards research following them into professional practice is perhaps reflected in a survey of chiropractors and massage therapists in Alberta, Canada.⁷ Suter and her team surveyed both groups on their perceived importance of research and the use of research in practice, their perceived level of research literacy and capacity, and their application of research findings to clinical practice.

Both chiropractors and massage therapists reported an overall positive perception toward research and acknowledged research as being important to validate their practice. However, both groups lacked confidence in research skills and the actual application of research to practice was limited. The authors concluded that a lack of research education and related skills was probably related to the lack of research application in practice.

To be sure, chiropractic institutions are not necessarily alone in addressing issues of participation in scholarship, how it is defined and how it is compensated. These are ongoing and contentious issues within academia.⁸

However, those professions operating outside health care may have greater latitude in addressing these issues in a timely manner. Within health care we are faced with the ever increasing demands of evidence based medicine and the chiropractic profession will be no less affected by this movement. In fact, I would argue that chiropractic, along with complementary and alternative medicine, will be more affected given the late start on a research infrastructure and the entrenched, negative professional attitudes towards research. From Flanagan,² Henkin,³ and Marchiori's⁴ perspective it seems it is not so much the attitudes of faculty that need to be addressed as much as it is the chiropractic college administration's commitment to supporting a culture of research and scholarship.

Administrators of chiropractic educational programs need to seriously reconsider the back seat that is routinely given to research budgeting lest we dig ourselves even deeper into the hole we are in.

Looking outside the chiropractic profession to inform the discussion, Cull et al examined 318 pediatric resident's research attitudes and experiences and found that residents who pursued a subspecialty were more likely to have had formal research training and to have assisted on a research project during their residency.⁹ According to Cull, a favorable rating towards research was the strongest predictor in this decision. Of note is that both groups rated their knowledge of most research skills as fair or poor.

Harrison et al looked at changes in nursing students' knowledge and attitudes toward research following an undergraduate research course.¹⁰ They studied 54 students in a course that had them critique research articles, complete objective examinations, and develop research proposals. They completed pre and post tests measuring research knowledge and attitudes. More positive attitudes toward research were reported at the end of the program than at the beginning of the course. Significantly higher knowledge scores were noted at the end of the course than at the beginning of the course or at the end of the program.

Adamsen et al studied the effect of a research methods course on nurses' research activity.¹¹ They used a one-year research course in basic research methodology designed for clinical nurses and found it had a positive effect on the nurses' own research activity and their commitment to research in general.

Compared to a group that did not take the course, those

that did were more active in planning their own projects, they showed a higher level of interest and commitment to research results of others, were able to find more time to conduct research and they read more research articles. The authors stressed the beneficial use of such a course to change the culture in terms of research attitudes.

Hakansson and his colleagues reported on the results of research methodology courses given to 1000 actively practicing physicians.¹² They reported that among the general practitioners in the region, one in five has taken the course, and one in five has then gone on to start formal PhD studies.

Hren and his colleagues explored the relationship between teaching scientific methodology in a medical curriculum and student attitudes and knowledge regarding science and scientific methodology.¹³ They studied 932 students and concluded that medical students generally have positive attitudes towards science and scientific research in medicine. Further, they found that attendance of a course on research methodology was related to a positive attitude towards science.

Marusic reports on the implementation of a mandatory course on scientific research and communication in a medical school curriculum.¹⁴ As a result of the course they reported more positive attitudes of students toward scientific research and evidence-based medicine, and that a significant number of students began working on research projects and publishing scientific papers as a result of the course.

Both Zhang and Newell's chiropractic surveys show that, for the most part, chiropractic students consider research important.^{5,6} However, things seem to fall apart from there. While 50% of the students in Zhang's study were interested in research in general, one has to wonder about the other 50% and what this says about the profession and our educational process. And while the majority of students felt that research seemed to be important and necessary to chiropractic, very few thought they should be required to be trained in it.

The other surveys and studies reviewed clearly show evidence of a positive outcome in terms of research attitudes and productivity following the implementation of courses in research methodology. It would be helpful to have data on such effects in chiropractic curricula since the available literature is based on students in medical and nursing programs as well as medical practitioners.

Where do we go from here?

Everyone seems to agree that we have a problem in terms of our profession's cultural distaste or apathy for research and we have some evidence that we can't deny.

For those chiropractic institutions that do not already require students to complete a research project prior to graduation I would urge them to start. I believe the simplest way to address the CCE competencies and to meet any research related objectives of the chiropractic program is to implement a course designed to teach chiropractic interns how to research and write a case study report. Considering that every single chiropractic student has to care for a prescribed number of patients in order to graduate – finding a suitable case should not be difficult. Further, it would seem that a good number of these cases are unique, interesting and their reporting may even provide something new to the literature. I say this considering that many if not most of our institutions state they are training these future chiropractors as primary care clinicians, so the spectrum of patient cases in those teaching clinics should certainly reflect this. For those that might argue most of the cases being managed by these students will be mundane, garden variety neck and back pain cases and that the writing of case studies should be reserved for rarer conditions and more significant cases, I suggest that in terms of an exercise for the student this point is moot. Even the student who has cared for the garden variety neck or back pain case can benefit from writing up such a case since they will still have to go through the mechanics of putting together the paper, reviewing and critically evaluating the literature and then telling the patient's story. In those cases where the student was fortunate enough to have a unique case the student could be encouraged to submit such a paper to a peer reviewed journal for consideration to publish. Another benefit to such a process is the involvement of the clinical faculty since many times, depending on the clinic structure at the institution, the clinic faculty is also caring for, or directly supervising, the patient's care. Such a process would enable faculty to then get involved in the research process.

Many of our schools are also participating in preceptorship and clinical residency programs such as rotations in hospitals and other venues such as the Veterans' system here in the United States. These programs expose our students to a wide variety of cases and conditions that would be worth writing up and at the same time giving

added opportunity for chiropractors in the field to get involved in the research process.

Course Structure

I suggest that the course be a mandatory one within the chiropractic curriculum and that it be placed within the last one or two quarters of the program. This will ensure that the student has a sufficient patient pool to choose from and that they have had a minimum of experience caring for patients longitudinally so that sufficient time has elapsed that the patient may have experienced some benefit from the care provided.

Interns could elect to take it sooner provided they have completed any necessary pre-requisites including research methods courses. The key is that they have access to and are involved in patient care.

The course could be a capstone in the series of clinical courses they are already required to take. The course should stress evidence based approaches and rely heavily on the peer reviewed literature in all of its reading assignments. In order to graduate the student would be expected to prepare a written clinical case study that, at a *minimum*, meets the technical requirements for publication in a peer reviewed research journal. The selection of an appropriate clinical case, a thorough review of the elements of a case study report, how to review the appropriate literature for the reference section, and the systematic construction of the report could be covered in a combination lecture and self study format.

Such a case study research methods course would be intended to give the student hands-on experience writing a case study research report coupled with an appreciation of the importance, necessity and benefits of research to their professional experience. The importance of research, critical evaluation and scholarly writing to the chiropractic profession should also be emphasized.

The course objectives would include giving interns the experience of writing a clinical case study research report that meets the technical requirements of a peer reviewed research journal. The course should impress upon the intern an understanding of the societal obligation the chiropractic profession has to produce research and the importance of research in education, clinical practice and to the growth of the profession. Further, the course is meant to give interns the experience of evaluating new and current knowledge. Not only would these fulfill ac-

Table 1 *Suggested Lecture Topics for a Case Study Research Methods Course***Lecture One**

Review of the syllabus and course requirements.

Review of the Instructions for Authors and Technical Requirements for the paper. Review of the components of a case study report.

Guidelines for picking a case worthy of writing up.

An overview of chiropractic peer reviewed journals.

Lecture Two

The importance of research in chiropractic education, clinical practice and to the growth of the profession.

Lecture Three

Literature searching, strategies, and databases.

Lecture Four

In depth review of a case study and its components.

Lecture Five

Getting published.

Submitting your work.

The peer review process.

Review of the various peer reviewed chiropractic research journals.

The remaining weeks of the course are self directed by the student with meetings and reviews of drafts by the instructor driven by student request.

creditation standards but no one could reasonably argue that these are not important and necessary things to teach our students in the interest of our own profession – never mind the students themselves and the future patients they serve.

It is suggested that, for those institutions so inclined, two additional objectives for the course be to give interns the experience of incorporating models of vertebral subluxation into clinical situations and to give students the experience of relating models of subluxation to technique and the clinical management of the patient.

These last two objectives are included due to a perceived lack of understanding and related experience in incorporating models of subluxation into the overall diagnosis and management of patients. Also, the chiropractic literature in general seems to suffer from a lack of these types of descriptions when reporting on clinical research.^{15,16}

These two objectives could also form the basis for content issues related to the paper since the bulk of the requirements to simply pass the course would revolve around meeting technical requirements taken from the Instructions for Authors of chiropractic peer reviewed research journals. These two objectives allow content issues to be addressed with grades on the papers reflecting the depth to which students explore those areas.

One way the course could be set up is using a quarter system example. The course could be based on an 11 week quarter and be taught in a combination lecture and self study type format. There would be five lectures during the first half of the course that cover topics such as picking a case study worthy of writing up, review of the components of a case study report, importance of research to the profession and society, literature searching, and the publication process. (See Table 1)

The remaining weeks in the course could be devoted to

one on one meetings with interns to review and critique their work prior to their final submission. While I personally believe the 11 week timeline for completing a case study is adequate, for those who feel the timeline is too tight it could always be expanded and the students given two quarters to complete the project. However, anyone who teaches for a living would probably agree that giving them more time simply gives them more time to put it off.

Conclusion

I have attempted to briefly discuss the literature related to research attitudes and productivity among students and faculty within chiropractic and also in the wider field of health care. Clearly we have some obstacles in our profession related to research infrastructure and attitudes regarding its central importance to our survival – never mind our responsibility to the patients we serve.

I argue that the best place and time to start changing the cultural attitudes regarding research within our profession is while we have the attention of the students. I have offered a description of a mandatory course in case study research methods as one way to begin this change. The profession is in need of graduates who understand and appreciate the role of research in the ongoing development of chiropractic. The Council on Chiropractic Education has specific competencies that address research related issues within the curriculum and many of our institutions have goals and objectives related to research that involve training students in research methods. This course could help fulfill these areas of concern.

Once students go through the experience of not just reading and evaluating research but *doing* research – even if it's a simple case study – I contend that this will begin to change their attitudes towards it. And we desperately need every little bit we can get in that regard.

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