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Canadian chiropractors' attitudes towards chiropractic philosophy and scope of practice: implications for the implementation of clinical practice guidelines

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The development of effective implementation strategies for chiropractic clinical practice guidelines (CPGs) presumes knowledge about the attitudes of the Canadian chiropractic profession. The purpose of this study was to explore the attitudes of Canadian chiropractors to philosophy and scope of practice. We hypothesized that given most Canadian chiropractors are trained at one school, the Canadian Memorial Chiropractic College (CMCC) in Toronto, there would be a reasonable degree of consensus about the practice of chiropractic in Canada, and therefore, effective implementation strategies could be developed.

Drawing on a stratified random sample of Canadian chiropractors (n = 401), we found that 18.6% of respondents held conservative views, 22% held liberal views and 59.4% held moderate views. Conservative chiropractic philosophy rejects traditional chiropractic philosophy as espoused by D.D. and B.J. Palmer, and emphasizes the scientific validation of chiropractic concepts and methods. A conservative philosophy is associated with a narrow scope of practice in which chiropractic practice is restricted to musculoskeletal problems. A liberal chiropractic philosophy adheres to traditional chiropractic philosophy (offered either by D.D. or B.J. Palmer) and is associated with a broad scope of practice which includes the treatment of non-musculoskeletal conditions. Liberal-minded respondents are more likely to identify chiropractic as an alternate form of health care.

Using ANOVA and MCA, the best predictors of the philosophy index were college of training and province

Le développement de stratégies de mise en oeuvre efficace pour les Directives pour la Pratique Clinique de la chiropratique présume une connaissance de la profession de chiropratique. L'objectif de cette étude était d'explorer les attitudes des chiropraticiens canadiens vis à vis de la philosophie et de l'étendue de leur pratique. Nous sommes parti de l'hypothèse qu'étant donné que la plupart des chiropraticiens canadiens sont formés à une école, le Canadian Memorial Chiropractic College (CMCC) à Toronto, il y aurait un degré raisonnable de consensus sur la pratique de la chiropractie au Canada et que, par conséquent, une mise en place efficace des stratégies pourrait être développée.

En se rapportant à un sondage stratifié des chiropraticiens canadiens, choisis au hasard (n = 401), nous avons remarqué que 18,6 % des répondants avaient des opinions conservatrices, 22% avaient des opinions libérales et que 59,4 % se disaient modérés. La chiropratique conservatrice rejette la philosophie traditionnelle telle que la concevait D.D. et B.J. Palmer, et met l'accent sur la validation scientifique des concepts et des méthodes de la chiropratique. Une philosophie conservatrice est associée à une vision restreinte de la pratique dans laquelle la chiropratique se réduit aux troubles. Une philosophie libérale de la chiropratique adhère à la philosophie traditionnelle (proposée à la fois par D.D. et par B.J. Palmer) et est associée à une vision large de la pratique qui inclut le traitement des problèmes non-musculosquelettiques. Les répondants d'orientation libérale auront plus tendance à identifier

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of practice. Chiropractors who trained at the CMCC held more conservative views than those who were trained elsewhere. Moreover, we found significant provincial differences among the provinces on the philosophy index. Saskatchewan chiropractors held the most conservative views on the philosophy index; Quebec chiropractors held the most liberal views. We concluded that given the divergence of opinions among Canadian chiropractors, one implementation strategy would not be effective. We also questioned whether CPGs are the most efficacious method of changing clinical behaviour.
(JCCA 1997; 41(3):145–154)

KEY WORDS: chiropractic, scope of practice, philosophy, practice guidelines.

la chiropractie comme une forme alternative de soins médicaux.

Selon ANOVA et MCA, les meilleurs indicateurs de l'index de philosophie étaient le centre de formation et la province de pratique du chiropraticien en question. Les chiropraticiens qui ont été formés au CMCC avaient des opinions plus conservatrices que ceux qui ont été formés ailleurs. De plus, nous remarquons des différences significatives au niveau de l'index de la philosophie selon la province où pratique le chiropraticien. Les opinions des chiropraticiens de la Saskatchewan étaient les plus conservatrices selon l'index de philosophie; tandis que ceux des chiropraticiens du Québec étaient les plus libérales. Nous avons conclu qu'étant donné les différences d'opinion parmi les chiropraticiens canadiens, une seule stratégie de mise en oeuvre ne sera pas profitable. Nous nous sommes aussi demandé si les directives pour la pratique clinique constituent la méthode la plus efficace pour changer le comportement clinique ou médical.
(JCCA 1997; 41(3):145–154)

MOTS CLÉS : chiropratique, étendue de la pratique, philosophie, directives pour la pratique.

Introduction

Since the inception of chiropractic in 1895, chiropractic philosophy has been a contentious issue within the profession. Chiropractors continue to wrestle with the legacy of D.D. and B.J. Palmer's visions of chiropractic, the validity of chiropractic concepts and methods, the degree to which chiropractic represents an alternate form of health care, the treatment of non-musculoskeletal problems, the scientific status of chiropractic knowledge and the relative importance of controlled clinical trials to clinical experience. These issues are not simply academic ones but have significant implications for ongoing debates over scope of practice, and the coverage of chiropractic services by third-party payers.

One area in which knowledge of chiropractors' attitudes towards philosophy is potentially useful is the distribution, dissemination and implementation of clinical practice guidelines (CPGs). Chiropractors, like other health care providers, have recognized the need to develop CPGs as one mechanism for assuring quality care. But the experiences of other health care professions suggests awareness of CPGs does not necessarily lead to the incorporation of CPGs into clinical practice.[1,2,3] The development, then, of effective implementation strategies for chiropractic CPGs presumes knowledge about the attitudes of the Canadian chiropractic profession.[4] In this paper, we explore the attitudes of Canadian chiropractors toward scope of practice and philosophy of chiropractic. We hypothesized that since the majority of Canadian chiropractors are trained at one school, the Canadian Memorial Chiropractic College (CMCC) in Toronto, there would be a reasonable degree of consensus about the practice of chiropractic in Canada, and therefore, effective implementation strategies could be developed.

Background

In the early 1990s the Canadian Chiropractic Association struck a committee to develop and publish recommendations for CPGs for chiropractors in Canada.[5] In 1994, they were distributed to all Canadian chiropractors, their professional organizations, federal and provincial legislative bodies, other health care professions, Workers' Compensation Boards, and insurance corporations. Distribution is an important first step in guideline use but it does not guarantee that changes in clinical practice will follow. Only when guidelines are adopted and incorporated into routine practice will they be considered successfully implemented.

Much of the literature on the development, dissemination and implementation of CPGs is based on a rational model of human behaviour which assumes that when health care practitioners are presented with scientific evidence, they will naturally change their behaviour. The literature on CPGs is replete with models, based on a step by step approach, which if followed, are expected to result in the successful incorporation of CPGs into routine clinical practice. But in the real world of clinical practice, awareness and adoption of CPGs is influenced by many factors other than the strictly scientific reasons provided in CPGs. Studies of changes in the attitudes and behaviour of health care providers in the direction of the proposed CPGs point to the importance of social factors, as opposed to scientific evidence, in the incorporation of CPGs into routine practice.[6] These social factors[7,8] include: the credibility of the organizations developing the CPGs, the effectiveness of the dissemination strategy, the role of opinion leaders in persuading rank and file practitioners[9] of the significance of CPGs for clinical practice, and the use of financial incentives to change practitioners' behaviour.[10] In short, successful implementation of CPGs requires an understanding of the values and interests of the organizations developing CPGs and the ways in which these values may resonate or conflict with those of local, rank and file practitioners.

Sample and methods[11]

In 1994, the total number of chiropractors licensed to practice in Canada was 3,941. Given that the numbers of chiropractors practising in each province varies and that women represent only 16.5% of all chiropractors, a stratified random sample of 600 chiropractors based on province and gender was drawn from the mailing list of the Canadian Federation of Licensing Boards. Three mailouts elicited a response rate of 68.3% ($n = 401$).[12]

For the current study, we adopted and modified a questionnaire developed by Robert D. Jansen[13] on chiropractors' attitudes towards standards of care, respect for chiropractic leaders and organizations, as well as sociodemographic characteristics and practice profiles. Since Jansen did not measure chiropractors' attitudes toward chiropractic philosophy and scope of practice per se, we developed twelve (12) statements which directly addressed these issues. Our questionnaire then consisted of fifty-seven (57) statements based on a five point Likert scale ranging from strongly agree (1) to strongly disagree (5).

Since a factor analysis[14] did not elicit coherent attitudinal patterns within the chiropractic profession, we developed a philosophy index based on substantive knowledge of chiropractic philosophy.[15,16] The philosophy index[17] was an additive scale consisting of thirteen (13) statements on whether chiropractors saw chiropractic as an alternative form of medicine; whether they subscribe to traditional chiropractic philosophy espoused by either D.D. Palmer or B.J. Palmer; the causes of disease; the value of the concept of subluxation, and the validity of chiropractic treatment for non-musculoskeletal conditions. The internal consistency alpha reliability coefficient was .7700.

The five-point Likert scale[18] was collapsed into a three point Likert scale (1 = agree, 5 = disagree, 3 = neutral); the potential scores on the scale ranged from 13–65. The data were then ranked by percentile and divided into three groups at the 33rd and 66th percentile to ensure the formation of three relatively large sub-samples of equal size. Scores at the low end of the scale (13 to 30) indicate a conservative chiropractic philosophy which rejects traditional chiropractic philosophy as espoused by D.D. and B.J. Palmer, and emphasizes the scientific validation of chiropractic concepts and methods. A conservative philosophy is associated with a narrow scope of practice in which chiropractic practice is restricted to musculoskeletal problems. A high score (49 to 65) indicates a liberal chiropractic philosophy which accepts traditional chiropractic philosophy (offered either by D.D. and B.J. Palmer) and is associated with a broad scope of practice which includes the treatment of non-musculoskeletal con-

ditions. A third group (31 to 48) represents a moderate position somewhere between these two poles.

Using the philosophy index as the dependent variable, and age, income, year of graduation, gender, province of practice and college of graduation as independent variables, we conducted a Analysis of Variance (ANOVA) and Multiple Classification Analysis (MCA) to examine the relationship between the independent and dependent variables.

Results

The respondents

There was considerable provincial variation in response rates ranging from a high 89.01% ($n = 81$) in British Columbia to 42.86% ($n = 9$) in Nova Scotia (Table 1). Response rates for smaller provinces should be interpreted cautiously since the effective sample was small. The number of females and males who responded to our questionnaire was 118 and 283 respectively. The mean age of the sample was 40.6 years. The majority ($n = 262$)[19] of respondents were trained at CMCC and worked in solo practice ($n = 224$). The median number of years in practice was thirteen (13) and the median annual pre-tax income was approximately $80,000. Even though all Canadian chiropractors had received a copy of *Clinical Practice Guidelines for Chiropractic Practice in Canada* by March 1994, the data indicates that as of October, 1994 only 59.5% had read them.

Attitudes towards Chiropractic Philosophy and Scope of Practice

There is general agreement among chiropractors (74%) that the distinguishing feature of "mainline" chiropractic is the osseous adjustment. The majority of chiropractors agree that manipulation differentiates chiropractic from other health care practitioners.

An overwhelming number of chiropractors (94.0%) believe that chiropractors are integral members of the health care team. Despite this level of agreement, chiropractors hold diverse views on chiropractic philosophy. Based on our philosophy index, 18.6% of respondents were classified as conservative chiropractors; 22% were liberals; and 59.4% were moderates. At the conservative end of the continuum, a small group of chiropractors (14%) believe that chiropractic should be limited to musculoskeletal conditions. The overwhelming majority (74.1%), however, do not agree with this view. At the liberal end of the continuum, 36.7% of all chiropractors indicated that they subscribed to the philosophy of D.D. Palmer and 26.6% subscribed to the philosophy of B.J. Palmer.

Most chiropractors in the sample (54.6%) view chiropractic as an alternate form of health care. These chiropractors were more likely to have a higher score on the philosophy index. Compared to the 32% who did not agree that chiropractic was an alternative form of health care, the liberally-minded chiropractors were more likely to agree with the statements "the subluxation is the cause of many diseases", "I subscribe to the philosophy of D.D. Palmer"

Table 1
Return Rates by Province of Practice

Province	Effective Sample	Questionnaires Returned	Response Rate (%)
British Columbia	91	81	89.01
Alberta	74	53	71.62
Saskatchewan	38	32	84.21
Manitoba	49	37	75.51
Ontario	159	102	64.15
Quebec	99	62	62.63
Nova Scotia	21	9	42.86
New Brunswick	21	13	61.90
Newfoundland	13	11	84.61
Prince Edward Island	2	1	50.00

Source: David A. Hay, 1996. "A mail survey of health care professionals and analysis of the response", J Can Chirop Assoc 1996; 40(3):162–168.

and "I subscribe to the philosophy of B.J. Palmer".

Cross-tabular analysis of chiropractors' views on chiropractic as an alternate form of care indicates that 39.1% of those who agree that chiropractic is an alternate form of care also subscribe to the view that "subluxations are the cause of many diseases" while 60.4% of those chiropractors who do not see chiropractic as alternate form of care do not believe that "subluxations are the cause of many diseases" (Table 2).

Chiropractors who believe that chiropractic is an alternative form of care are more likely to subscribe to traditional chiropractic philosophies of D.D. and B.J. Palmer. Of the chiropractors who agree that chiropractic is an alternate form of care, 33.3% subscribe to D.D. Palmer's philosophy. In comparison, 42.9% of those who do not agree that chiropractic is an alternate form of care, do not subscribe to D.D. Palmer's philosophy (Table 3). Similarly, of the chiropractors who agree that chiropractic is an alternate form of care, 46.0% subscribe to B.J. Palmer's philosophy. In comparison, 31.7% of those who do not believe that chiropractic is an alternate form of care, do not subscribe to B.J. Palmer's theory (Table 4).

Chiropractors who lean toward the conservative end of the continuum are more likely to argue for a narrow scope

Table 2
Cross-Tabulation of the Absolute and Relative Frequencies for "Subluxations are the Causes of Many Diseases" (Attitude 44) by "Chiropractic is an Alternate Form of Care" (Attitude 52)

	Attitude 44			
Attitude 52	**Agree**	**Neutral**	**Disagree**	**Row Total**
Agree	50 39.1%	16 35.6%	49 22.6%	115 29.5%
Neutral	20 15.6%	12 26.7%	37 17.1%	69 17.7%
Disagree	58 45.3%	17 37.8%	131 60.4%	206 52.8%
Column Total	128 32.8%	45 11.5%	217 55.6%	390 100%

Cramer's $V = .14365$, $p = .00289$.

Table 3
Cross-Tabulation of the Absolute and Relative Frequencies for "I Subscribe to the Philosophy of D.D. Palmer" (Attitude 53) by "Chiropractic is an Alternate Form of Care" (Attitude 44)

	Attitude 44			
Attitude 53	**Agree**	**Neutral**	**Disagree**	**Row Total**
Agree	42 33.3%	10 22.2%	37 16.9%	89 22.8%
Neutral	42 33.3%	27 60.0%	88 40.2%	157 40.3%
Disagree	42 33.3%	8 17.8%	94 42.9%	144 36.9%
Column Total	126 32.3%	45 11.5%	219 56.2%	390 100.0%

Cramer's $V = .16938$, $p = .0017$.

of practice and support the view that chiropractic should be limited to musculoskeletal conditions. Cross-tabular analysis reveals that 81.2% of those chiropractors who agree that "chiropractic should be limited to musculoskeletal conditions" disagree that chiropractic is an alternate form of health care. In comparison, only 23.8% of chiropractors who agree that "chiropractic should be limited to musculoskeletal conditions" agree that "chiropractic is an alternate form of health care" (Table 5).

While there is a push towards evidence-based practice both within chiropractic and other health care disciplines, most chiropractors (74.3%) do not accept the view that controlled clinical trials are the best way to validate chiropractic methods; only 8.4% agree with this position and another 17.5% remain neutral. For many chiropractors, 'hands-on' care is an important source of validation for chiropractic treatments. A majority (51.3%) believe that "personal clinical experience is the best way to validate chiropractic methods" (Table 6); 43.6% also agree that "any method that seems to help the patient is valid" (Table 7). These two attitudinal variables are positively correlated ($r = .4296$, $p = 0.1$). Not surprisingly, the belief that

Table 4
Cross-Tabulation of the Absolute and Relative Frequencies for "I Subscribe to the Philosophy of B.J. Palmer" (Attitude 54) by "Chiropractic is an Alternate Form of Care" (Attitude 44)

	Attitude 44			
Attitude 54	**Agree**	**Neutral**	**Disagree**	**Row Total**
Agree	58 46.0%	17 37.8%	66 30.3%	141 36.2%
Neutral	37 29.4%	23 51.1%	83 38.1%	143 36.8%
Disagree	31 24.6%	5 11.1%	69 31.7%	105 27.0%
Column Total	126 32.4%	45 11.6%	218 56.0%	389 100.0%

Cramer's $V = .14441$, $p = .00273$.

Table 5
Cross-Tabulation of the Absolute and Relative Frequencies for "The Scope of Chiropractic Practice Should Be Limited to Musculoskeletal Conditions" (Attitude 46) by "Chiropractic is an Alternate Form of Health Care (Attitude 44)

	Attitude 46[1]			
Attitude 44	**Disagree**	**Neutral**	**Agree**	**Row Total**
Agree		9 20.9%	121 34.6%	130 33.1%
Neutral		12 27.9%	33 9.4%	45 11.5%
Disagree		22 51.2%	196 56.0%	218 55.5%
Column Total		43 10.9%	350 89.1%	393 100.0%

Cramer's $V = .18695$, $p = .00104$.

"personal clinical experience as the best way to validate chiropractic methods" is negatively correlated with the belief that "randomized controlled trials as the best method to validate chiropractic treatments" ($r = -.1141$, $p = .05$).

These two attitudinal variables which focus on 'hands-on' care as a major source of validation are positively correlated with the belief that "chiropractic is an alternate form of health care" ($r = .1753$, $r = .1790$, $p = .01$). Cross-tabular analysis shows that 39.6% of those who agree that "personal clinical experience is the best way to validate chiropractic methods", also believe that chiropractic is an alternate form of care; 70.4% of those who disagree with the view that "personal clinical experience is the best way to validate chiropractic methods", also disagree with the view that "chiropractic is an alternate form of care" (Table 6). Similarly, 43.3% who agree that "any method that seems to help the patient is valid", also agree that "chiropractic is an alternate form of care"; 68% of those who disagree that "any method that seems to help the patient is valid", also disagree with the view that "chiropractic is an alternate form of care" (Table 7).

Table 6
Cross-Tabulation of the Absolute and Relative Frequencies for "Personal Clinical Experience is the Best Way to Validate Chiropractic Methods" (Attitude 3) by "Chiropractic is an Alternate Form of Care" (Attitude 44)

	Attitude 3			
Attitude 44	Agree	Neutral	Disagree	Row Total
Agree	80 39.6%	25 26.6%	25 25.5%	130 33.0%
Neutral	27 13.4%	14 14.9%	4 4.1%	45 11.4%
Disagree	95 47.0%	55 58.5%	69 70.4%	219 55.6%
Column Total	202 51.3%	94 23.9%	98 24.9%	394 100.0%

Cramer's $V = .15309$, $p = .001$.

Table 7
Cross-Tabulation of the Absolute and Relative Frequencies for "Any Method That Seems to Help the Patient is Valid" (Attitude 4) by "Chiropractic is an Alternate Form of Care" (Attitude 44)

	Attitude 4			
Attitude 44	Agree	Neutral	Disagree	Row Total
Agree	74 43.3%	24 24.2%	32 26.2%	130 33.2%
Neutral	16 9.4%	22 22.2%	7 5.7%	45 11.5%
Disagree	81 47.4%	53 53.5%	83 68.0%	217 55.4%
Column Total	171 43.6%	99 25.3%	122 31.1%	392 100.0%

Cramer's $V = .19271$, $p = .00001$.

In terms of evidence for the efficacy of chiropractic treatment, a majority (59.6%) of chiropractors believe that there is evidence for the treatment of non-musculoskeletal problems with chiropractic methods (a contentious issue within chiropractic). However, fewer (47.1%) are willing to claim that chiropractic science has proven that chiropractic is valid for non-musculoskeletal problems and 32.4% of chiropractors reject this statement totally.

The one-way ANOVA indicates that significant differences ($p = .05$) on the philosophy index were found for the variables, "school of training" and "province of practice" (F values = 7.107 and 18.862 respectively). The MCA

Table 8
Multiple Classification Analysis Chiropractic Philosophy by Province of Practice and College of Training

Grand Mean = 41.65

Variable and Category	N	Unadjusted Dev'n	Unadjusted Eta	Adjusted for Independents Dev'n	Adjusted for Independents Beta
Province of Practice					
B.C.	71	−1.72		−2.15	
Alberta	52	2.85		1.33	
Saskatchewan	32	−8.77		−7.38	
Manitoba	33	−2.35		−2.22	
Ontario	94	.65		1.92	
Quebec	57	5.98		4.93	
Atlantic Provinces	28	−2.51		−2.48	
			.36		.32
College of Training					
CMCC	247	−2.07		−1.72	
Non-CMCC	120	4.25		3.55	
			.28		.23
Multiple R Squared					.175
Multiple R					.419

Table 9
Means and Standard Deviations for Philosophy Practice Index by Province of Practice

Province	N	Mean	Standard Deviation
Saskatchewan	32	32.87	9.72
Manitoba	34	39.41	10.81
Atlantic Provinces	31	40.03	10.35
British Columbia	73	40.20	9.72
Ontario	95	42.37	9.20
Alberta	53	44.74	9.16
Quebec[2]	59	47.54	10.90

Due to the small number of chiropractors practising in the Atlantic provinces, data for Prince Edward Island, Newfoundland, Nova Scotia and New Brunswick were collapsed into one variable – Atlantic provinces.

indicated that these two variables accounted for 17.5% of the variance (Table 8). The scores on the philosophy index were unrelated to age, year of graduation, gender or income.

Graduates of the CMCC hold more conservative attitudes toward chiropractic philosophy and scope of practice than graduates of other (the majority of which were American) schools. The mean scores on the philosophy index were 39.58 and 45.90 respectively (Table 8). Saskatchewan chiropractors had the most conservative views toward chiropractic philosophy and scope of practice. The mean score on the philosophy index for Saskatchewan respondents was 32.88. Quebec chiropractors had the most liberal views toward chiropractic philosophy and scope of practice. The mean score for this group was 47.54. The mean scores on the philosophy index for the Saskatchewan and Quebec sub-groups were statistically significant ($p = .05$). While the mean scores of the remaining provinces lay between these two provinces, statistical differences in the mean scores were also found between Saskatchewan and Alberta, Saskatchewan and Ontario, Manitoba and Quebec, and B.C. and Quebec (Table 9).

While the ANOVA indicated that college of training and province of practice had significant main effects, the results of the MCA analysis also indicate that the effects of college of training and the province of practice were independent; there were no significant interactive effects.

Discussion

Over the years the status of chiropractic philosophy and scope of practice has been a source of controversy and debate both within the chiropractic profession, and between chiropractors and other health care practitioners. While the majority of the profession holds a moderate position on chiropractic philosophy and scope of practice, the existence of significant minority groups at both the conservative and the liberal ends of the continuum suggests that the chiropractic profession is still divided over fundamental aspects of chiropractic practice.

The fact that just over half of the respondents believe that chiropractic represents an alternative form of health care signals important differences within the profession over chiropractic philosophy and the organization of chiropractic knowledge. Those respondents who believe that chiropractic is an alternate form of health are more likely to espouse a liberal philosophy, and believe in an empiricist form of knowledge in which personal experience and clinical authority are valued over scientific methods. A much smaller group of practitioners espouse a conservative philosophy and believe in a rationalist form of knowledge in which scientific methods are valued over clinical authority. The debate over the appropriateness of chiropractic treatment for non-musculoskeletal conditions highlights this tension between empiricism and rationalism. Although many chiropractors believe that there is evidence to support chiropractic treatment for non-musculoskeletal conditions, fewer are willing to say that this evidence is derived from scientific methods and one-third reject this view completely.

Given these divergences of opinion within the profession, we believe that it would be difficult to implement CPGs successfully into practice because embedded in the CPGs are the values and interests of the developers of the CPGs which may not necessarily reflect the values of significant segments within the chiropractic profession. It is unlikely that even if the developers of CPGs represented a broad spectrum within the profession, no one set of guidelines would appeal to all of the segments within the profession since the liberal and conservative philosophy scores appear to represent mutually exclusive positions. Since empiricism and rationalism reflect different ways of organizing chiropractic knowledge, we can expect that the empirically-oriented chiropractors are less likely to refer to clinical practice guidelines than are rationally-oriented chiropractors because the guidelines are embedded in a rationalist discourse.

Our data also indicates that there are significant provincial differences in attitudes towards chiropractic philosophy and scope of practice. This finding highlights the importance of understanding the local culture and legislation in the successful implementation of CPGs and thus ten provincial strategies may be more effective than one national strategy. Moreover, since the local culture is partly shaped by licensure requirements, regulations that govern chiropractic practice within a province, and different payment structures, it may be more effective to implement CPGs through legislative or regulatory mechanisms, and financial incentives. Similarly, the importance of college training in predicting attitudes towards chiropractic philosophy and scope of practice suggests that chiropractic colleges may have a significant role in implement-

ing CPGs and the values that underlie them.

These findings beg the much larger question about the efficacy of CPGs in changing clinical practice as they are currently conceptualized. Given the pivotal role that local provincial culture and college curriculum appear to have in shaping fundamental attitudes towards chiropractic practice, our findings suggest that core values are adopted early on in a chiropractor's career and may be resistant to change. Thus, the introduction of CPGs once a chiropractor is in practice may not have the desired impact on clinical behaviour because the values which underlie CPGs may conflict with already entrenched attitudes.

Acknowledgements

The authors gratefully acknowledge financial support from the Chiropractic Foundation for Spinal Research. They also thank Fern Hagin and Alma Roberts who provided research assistance, and to Steven Lewis and four anonymous reviewers for their helpful comments.

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11. For more detail regarding sample design and methods, see David A. Hay, 1996. "A mail survey of health care professionals and analysis of the response", J Can Chirop Assoc 1996; 40(3):162–168.

12 Some of the frequencies in the tabular results will be lower than the total response rate of 401 because some respondents did not answer all of the items in the questionnaire.

13 Jansen RD, A Survey of American Chiropractors' Attitudes Toward Practice Standards and the Organizations that Developed Them. Unpublished manuscript, September 1991.

14 Jansen conducted a factor analysis of his data and identified three coherent attitudinal patterns among chiropractic respondents. They were: Conservative (chiropractors who were opposed to standards of care); Liberal (chiropractors who were supported standards of care and external sources of validation); and Moderate (chiropractors who supported standards of care and internal sources of validation). A fourth, Independent, group was identified which did not fit into any of the above categories. Hansen's categories parallel our own findings using a philosophy index.

15 Haldeman S. Modern Developments in the Principles and Practice of Chiropractic. New York: Appleton-Century-Crofts, 1980.

16. Biggs CL. No Bones About Chiropractic? The Quest for Legitimacy by the Ontario Chiropractic Profession: 1895–1985. Toronto: University of Toronto, 1990. 475pp. Dissertation

17 For more detail, see Mierau, Dale, C. Lesley Biggs, David Hay, "A Chiropractic Philosophy Index", forthcoming.

18 The five-point Likert scale was collapsed into a three point Likert scale because the strongly disagree category was missing on the French questionnaires. In the three-point scale, categories "strongly agree" and "agree" (1 & 2) were collapsed together to create category 1, "agree"; categories "strongly disagree" and "disagree" were collapsed to create category 5, "disagree".

19 The percentage of CMCC respondents in our results is lower than that reported in International Division. Job Analysis of Chiropractic in Canada. Greeley, Colorado: National Board of Chiropractic Examiners. In the study conducted by the National Board, they sent out 982 questionnaires with an effective response rate of 683 (69.6%). The percent of CMCC graduates in their results was 75.1%.