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ORIGINAL ARTICLE

Chiropractic techniques and treatment modalities included in academic programs: A survey of chiropractic educational institutions

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ABSTRACT

Objective: The chiropractic techniques that chiropractors learn during their training strongly influence the nature of treatments provided by chiropractors and their professional identity. The objective of this project is to provide an exhaustive description of all chiropractic techniques and treatment modalities taught in chiropractic educational institutions.

Methods: International experts were solicited to provide feedback on the exhaustivity and clarity of our preliminary questionnaire. Following the expert suggestions, we administered our cross-sectional survey representatives of all chiropractic education institutions listed on the World Federation of Chiropractic website. We also asked the contact information for an additional contact from each institution and surveyed them for triangulation purposes.

Results: Among the 47 chiropractic education institutions surveyed, 29 completed our survey (response rate: 62%) of which 18 (62%) had 2 respondents. Among all the chiropractic techniques and treatment modalities investigated, only the Diversified technique was included in the core curriculum of all responding institutions. A considerable proportion of the techniques or modalities studied were not included in the educational activities of the institutions, particularly within the manual tonal or reflex techniques, instrument-assisted articular techniques, as well as the other techniques or modalities categories. Surprisingly, exercise prescription was not included in the core curriculum of all the institutions. Some scientifically challenged approaches were included in the educational activities of more than 40% of the institutions.

Conclusion: The portfolio of therapeutic teaching varies greatly between chiropractic educational institutions. A more standardized therapeutic curriculum could be beneficial to reduce public and interprofessional confusion toward therapeutic approaches in chiropractic.

Key Indexing Terms: Chiropractic; Surveys and Questionnaires; Education; Practice

J Chiropr Educ 2022;36(2):84–92 DOI 10.7899/JCE-21-32

INTRODUCTION

Patients seeking treatment for musculoskeletal conditions find it challenging to decide on a proper course of treatment as they are exposed to a plethora of therapeutic options.[1] Chiropractors contribute to this challenge, as a great variety of therapeutic procedures are used within the profession.[2] The type of technique and therapeutic modalities they use is notably associated with their patients' profiles and volume of referrals from medical doctors.[3,4] Moreover, the chiropractic techniques used also contribute to defining the professional identity of the health care provider.[5] The chiropractors' choice of technique is largely influenced by their education.[6–8] Historical leaders had an important influence on the therapeutic curriculum of their academic institutions. The techniques they developed are often referred to as *name techniques*. However, a growing number of chiropractic education institutions are now reluctant to include name techniques[9] in their curricula because some of these protocols to determine the site of manipulation are not well supported by contemporary scientific evidence.[10] Previous literature reviews of some chiropractic techniques have also highlighted the need to produce more evaluative research using rigorous methods given the limited number of studies available.[11,12] A recent commendable initiative has attempted to develop a chiropractic technique core

First Published Online April 28 2022

curriculum for education institutions, based on expert consensus.[9]

Currently, academic programs of chiropractic education institutions include a great variety of chiropractic techniques and treatment modalities. In the absence of an official registry of chiropractic therapeutic interventions or academic consensus, it is challenging to identify the boundaries of what might be legitimate components of chiropractic care. As a necessary first step toward the evaluation of chiropractic therapeutics procedures, the objective of this research project is to document all the chiropractic techniques and treatment modalities taught in chiropractic teaching institutions along with the context in which they are taught.

METHODS

Study Design

We administered a cross-sectional survey to all the chiropractic education institutions listed on the website of the World Federation of Chiropractic.[13] Our project received approval from The Université du Québec à Trois-Rivières Ethics Board for Research Involving Humans (CER-20-266-07.04).

Questionnaire Development

A steering committee (MAB, DB, SR, PBB, IP) was formed to identify an exhaustive list of chiropractic techniques and treatment modalities. We searched Medline, CINAHL, and Google using keywords such as *chiropractic technique*. We consulted educational, regulatory, and associative websites for directories of chiropractic techniques and treatment modalities. Following an iterative deliberative process, we grouped the chiropractic techniques and treatment modalities into the following categories:

1. Manual
    a. Thrust high-velocity low-amplitude or mobilization techniques
    b. Soft tissue techniques
    c. Tonal or reflex techniques
2. Instrument- or mechanically-assisted chiropractic technique or treatment modalities
    a. Articular
    b. Soft tissue
    c. Ancillary procedures
3. Patient recommendations
4. Other techniques or treatment modalities

A preliminary questionnaire related to the most formal context of teaching of each technique and modality was developed. To assess the content validity of the questionnaire, 20 experts (instructors with expertise in chiropractic technique from different teaching institutions internationally) were invited to evaluate the clarity and the exhaustivity of each item of our questionnaire. Eight experts completed our content validity evaluation, and the steering committee improved the survey questionnaire based on their input. Consequently, the most formal context of teaching of each technique or modality was divided into the following categories:

1. Mandatory entry-to-practice program (core curriculum)
2. Elective or optional course within the entry-to-practice program
3. Post-entry-to-practice degree-awarding program
4. Continuing education activities
5. Independent student club
6. Not a part of the institution's educational activities

The final survey questionnaire asked the respondents to identify the most formal context of teaching for each technique or modality listed in the predefined categories. Respondents were encouraged to add any additional item not previously listed and were also asked to provide the contact information of an additional representative from their institution, with sufficient knowledge of their academic curriculum, for triangulation purposes.

Data Collection

On December 14, 2020, the contact person from each chiropractic education institution listed on the website of the World Federation of Chiropractic[13] received an email invitation to our online survey (LimeSurvey 2006–2021; LimeSurvey.org). Participants were informed that their identities would remain confidential but that their institutions could be identified. Two reminders were sent to nonresponders in January 2021. We searched the website of each institution that had not completed the survey, to identify potential respondents (president, dean, director, chiropractic technique instructor) and contacted those potential respondents by up to 3 email invitations on a weekly basis. The additional representatives identified by the respondents for triangulation purposes were solicited using the same strategy. The survey was closed on March 30, 2021.

Data Analysis

We report descriptive statistics (frequencies and percentages) for the most formal context of teaching of the technique or modality surveyed. When the respondent did not identify a context of teaching for a technique or modality, we imputed *not part of your institution educational activities*. When the responses of 2 respondents from the same institution were not identical, we only considered the most formal context of teaching reported. Statistical analysis was performed using SPSS statistical software, version 27 (IBM SPSS, Inc, Armonk, NY, USA).

RESULTS

Among the 47 chiropractic education institutions surveyed, 29 completed our survey (response rate, 62%), 18 of which had 2 respondents (62%; Fig. 1). The chiropractic education institutions that contributed to our study are listed in Table 1. The descriptive statistics of the context of teaching for the manual, instrument- or

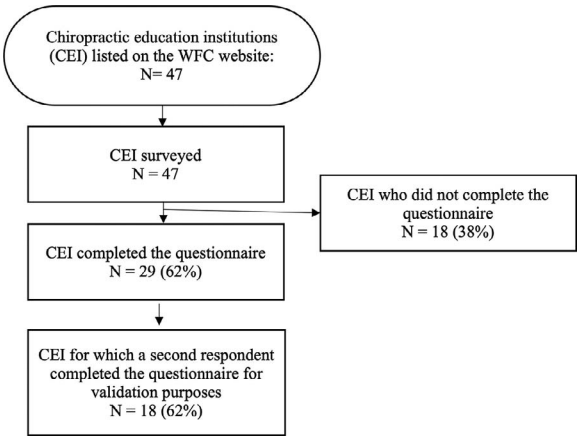

Figure 1 - Flowchart of the chiropractic education institutions included in the study.

mechanically-assisted, patient recommendations, and other chiropractic techniques or treatment modalities are presented in Tables 2–5, respectively.

The most frequent manual high-velocity low-amplitude or mobilization techniques included in the core curriculum were as follows: Diversified, Gonstead, Motion Palpation Institute, and pediatric adjustment techniques. Among the manual soft tissue techniques, trigger point therapy, temporomandibular joint treatment, myofascial release, massage, and cross-fiber friction technique were the most common within the mandatory entry-to-practice category. Most of the participating institutions did not include tonal or reflex techniques in their educational activities.

Within the mandatory entry-to-practice curriculum, more than half of the chiropractic educational institutions included Cox (flexion-distraction) and Thompson techniques in the articular category, and instrument-assisted soft tissue mobilization in the soft tissue category. Most of the chiropractic educational institutions also included ancillary procedures like cryotherapy, electrotherapy, kinesio taping, low-level laser, and ultrasound therapy in their core curriculum. The most frequent patient recommendations reported to be taught were exercise and nutritional prescriptions.

With the exception of postural orientation that is reported in 37.8% of the entry-to-practice programs, the techniques or treatment modalities included in the *other* category were rarely part of the educational activities of the majority of the responding institutions.

The following techniques or treatment modalities were not included in our questionnaire, but were reported as a part of the educational activities of at least 1 institution:

1. Ambulatory assistive devices, bracing, or orthopedic aids
2. Contract—relax
3. Joint taping
4. Manual release technique
5. Mobilization techniques by Maitland, Bourdillon, and Cyriax
6. Mulligan technique

Table 1 - Chiropractic Education Institutions That Completed Our Survey by Continents and Countries ($n = 29$)

Location	Institution
Oceania	
Australia	Macquarie University
	Murdoch University
	Royal Melbourne Institute of Technology
New Zealand	New Zealand College of Chiropractic
South America	
Brazil	Universidade Feevale
Mexico	Universidad Veracruzana
North America	
Canada	Université du Québec à Trois-Rivières
United States	Cleveland University—Kansas City College of Chiropractic
	D'Youville College
	Keiser University
	Life University
	Logan University
	New York Chiropractic College
	Parker University
	Sherman College of Chiropractic
	Northwestern Health Sciences University
	Southern California University of Health Sciences
	University of Bridgeport
	University of Western States
Europe	
France	Institut Franco-Européen de Chiropraxie
Spain	Barcelona College of Chiropractic
	Madrid College of Chiropractic—Real Centro Universitario
Switzerland	University of Zurich
Turkey	Bahçeşehir Üniversity—Chiropractic Program
United Kingdom	AECC University College
	McTimoney College of Chiropractic
	University of South Wales—Welsh Institute of Chiropractic
Africa	
South Africa	Durban University of Technology
	University of Johannesburg

Within the feedback section of the questionnaire, the respondents outlined that it was sometimes challenging to select a proper context of teaching in cases where the complete technique protocol was not taught (introduction or limited components). Many institutions indicated that they no longer teach traditional name techniques and consequently completing our survey was more challenging. A small number of potential respondents declined to complete our survey because they were not comfortable with the nonanonymity of their institutions' response.

DISCUSSION

This project revealed many interesting and unexpected findings. Notably, the fact that among all the chiropractic

Table 2 - Context of Teaching of the Manual Chiropractic Technique or Treatment Modalities, *n* (%)

	Mandatory Entry-to-Practice Program (Core Curriculum)	Elective or Optional Course Within the Entry-to-Practice Program	Post-Entry-to-Practice Degree-Awarding Program	Continuing Education Activities	Independent Student Club	Not a Part of the Institution Educational Activities
Thrust high-velocity low-amplitude or mobilization techniques						
Blair analysis and adjusting technique	—	3 (10.3)	—	—	1 (3.4)	**25 (86.2)**
Chrane Condyle lift	—	—	—	—	—	**29 (100)**
Cranial therapy	1 (3.4)	3 (10.3)	—	2 (6.9)	2 (6.9)	**21 (72.4)**
Diversified technique	**29 (100)**	—	—	—	—	—
Full spine specific chiropractic technique (Meric)	3 (10.3)	1 (3.4)	—	—	—	**25 (86.2)**
Gonstead technique	**15 (51.7)**	4 (13.8)	—	—	3 (10.3)	7 (24.1)
Grostic technique	—	—	—	—	1 (3.4)	**28 (96.6)**
Manipulation under anesthesia	1 (3.4)	—	—	1 (3.4)	—	**27 (93.1)**
McTimoney technique	1 (3.4)	—	—	—	—	**28 (96.6)**
Motion Palpation Institute technique	**18 (62.1)**	2 (6.9)	—	2 (6.9)	2 (6.9)	5 (17.2)
National Upper Cervical Chiropractic Association technique	3 (10.3)	—	—	—	—	**26 (89.7)**
Pediatric adjustment	**21 (72.4)**	3 (10.3)	—	—	—	5 (17.2)
Petitbon adjusting instrument and technique	—	—	—	—	—	**29 (100)**
Touch and hold technique (pediatric)	6 (20.7)	—	—	—	—	**23 (79.3)**
Soft tissue techniques						
Active release technique	9 (31)	3 (10.3)	—	3 (10.3)	1 (3.4)	**13 (44.8)**
Bagnell chiropractic technique	—	1 (3.4)	—	—	—	**28 (96.6)**
Cross-fiber friction technique	**20 (69.0)**	2 (6.9)	—	—	—	7 (24.1)
Jones technique or counterstrain technique	7 (24.1)	3 (10.3)	—	—	—	**19 (65.5)**
Massage	**15 (51.7)**	1 (3.4)	1 (3.4)	1 (3.4)	—	11 (37.9)
Muscle energy technique	**13 (44.8)**	2 (6.9)	—	1 (3.4)	1 (3.4)	12 (41.4)
Myofascial release	**20 (69.0)**	3 (10.3)	1 (3.4)	1 (3.4)	—	4 (13.8)
Nimmo technique	8 (27.6)	2 (6.9)	—	—	—	**19 (65.5)**
Pin and release technique	12 (41.4)	2 (6.9)	1 (3.4)	—	—	**14 (48.3)**
Temporomandibular joint treatment	**22 (75.9)**	1 (3.4)	—	—	—	6 (20.7)
Trigger point therapy	**25 (86.2)**	1 (3.4)	—	—	—	3 (10.3)
Webster technique	6 (2.7)	5 (17.2)	—	1 (3.4)	1 (3.4)	**16 (55.2**)
Tonal or reflex echniques						
Bio-energetic synchronization technique	—	1 (3.4)	—	1 (3.4)	—	**27 (93.1)**
Bio-geometric integration	—	2 (6.9)	—	—	1 (3.4)	**26 (89.7)**
Chiropractic manipulative reflex technique	—	1 (3.4)	—	—	2 (6.9)	**26 (89.7)**
Directional non-force technique (Van Rumpt)	—	—	—	—	—	**29 (100)**
Jennetics procedure and instrument	—	—	—	—	—	**29 (100)**
Koren specific technique	—	—	—	2 (6.9)	—	**27 (93.1)**
Logan basic technique	6 (20.7)	2 (6.9)	—	—	2 (6.9)	**19 (65.5)**
Network spinal analysis	—	3 (10.3)	2 (6.9)	—	—	**24 (82.8)**
Neuro-emotional technique	—	3 (10.3)	—	—	—	**26 (89.7)**
Talsky tonal chiropractic	—	—	—	—	—	**29 (100)**
Tonal integrative technique	—	—	—	—	—	**29 (100)**

The most frequent category is in ***bold.***

Table 3 - Context of Teaching of the Instrument- (or Mechanically-) Assisted Chiropractic Technique or Treatment Modalities, *n* (%)

	Mandatory Entry-to-Practice Program (Core Curriculum)	Elective or Optional Course Within the Entry-to-Practice Program	Post-Entry-to-Practice Degree-Awarding Program	Continuing Education Activities	Independent Student Club	Not a Part of the Institution Educational Activities
Articular						
Activator adjusting instrument and technique	**10 (34.5)**	**10 (34.5)**	—	3 (10.3)	1 (3.4)	5 (17.2)
Applied spinal biomechanical engineering	—	—	—	—	—	**29 (100)**
ArthroStim instrument	1 (3.4)	1 (3.4)	1 (3.4)	—	—	**26 (86.7)**
Atlas orthogonal-sweat adjusting instrument technique	3 (10.3)	—	—	—	—	**26 (89.7)**
Cox technique (flexion-distraction)	**17 (58.6)**	6 (20.7)	—	—	—	6 (20.7)
Impulse adjusting instrument	5 (17.2)	2 (6.9)	—	1 (3.4)	—	**21 (72.4)**
Jennetics procedure and instrument	—	—	—	—	—	**29 (100)**
Leander technique	2 (6.9)	2 (6.9)	—	—	—	**25 (86.2)**
Nasal specific technique	1 (3.4)	—	—	1 (3.4)	—	**27 (93.1)**
Neuro-impulse protocol	1 (3.4)	—	—	1 (3.4)	—	**27 (93.1)**
Neuro-vertebral decompression therapy	—	—	—	—	—	**29 (100)**
Pierce results system	—	1 (3.4)	—	—	—	**28 (96.6)**
Pro-Adjuster Sigma instruments	—	—	—	—	—	**29 (100)**
PulStar system	—	—	—	—	—	**29 (100)**
Sacro-occipital technique	8 (27.6)	7 (24.1)	—	2 (6.9)	2 (6.9)	**10 (34.5)**
Thompson technique	**18 (62.1)**	5 (17.2)	—	1 (3.4)	1 (3.4)	4 (13.8)
Toftness adjusting technique	—	—	—	—	—	**29 (100)**
Toggle recoil technique	11 (37.9)	1 (3.4)	—	2 (6.9)	1 (3.4)	**14 (48.3)**
Torque release technique and instrument	1 (3.4)	3 (10.3)	—	1 (3.4)	1 (3.4)	**23 (79.3)**
Soft tissue						
Spray and stretch technique	6 (20.7)	—	—	1 (3.4)	—	**22 (75.9)**
Instrument-assisted soft tissue mobilization	**17 (58.6)**	2 (6.9)	—	—	—	10 (34.5)
Ancillary procedures						
Cryotherapy	**23 (79.3)**	1 (3.4)	—	—	—	5 (17.2)
Dry needling therapy or acupuncture	5 (17.2)	3 (10.3)	—	3 (10.3)	1 (3.4)	**17 (58.6)**
Electrotherapy	**19 (65.5)**	1 (3.4)	—	1 (3.4)	—	8 (27.6)
Kinesio taping	**19 (65.5)**	3 (10.3)	—	3 (10.3)	—	4 (13.8)
Low-level laser therapy	**17 (58.6)**	2 (6.9)	—	—	—	10 (34.5)
High-power laser therapy	7 (24.1)	—	—	1 (3.4)	1 (3.4)	**20 (69.0)**
Ultrasound therapy	**19 (65.5)**	2 (6.9)	—	—	—	8 (27.6)
Shockwave therapy	9 (31)	2 (6.9)	—	—	—	**18 (62.1)**
Therapeutic vibration (direct or whole body)	8 (27.6)	—	—	—	—	**21 (72.4)**

The most frequent category is in ***bold.***

Table 4 - Context of Teaching of the Patient Recommendations, *n* (%)

	Mandatory Entry-to-Practice Program (Core Curriculum)	Elective or Optional Course Within the Entry-to-Practice Program	Post-Entry-to-Practice Degree-Awarding Program	Continuing Education Activities	Independent Student Club	Not a Part of the Institution Educational Activities
Exercise prescription	**26 (89.7)**	—	—	1 (3.4)	—	2 (6.9)
Foot orthotics (fabrication and modification)	11 (37.9)	3 (10.3)	—	3 (10.3)	—	**12 (41.4)**
Good Life with osteoarthritis in Denmark (GLA:D), back	1 (3.4)	1 (3.4)	—	—	—	**27 (93.1)**
GLA:D, knee	—	1 (3.4)	—	—	—	**28 (96.6)**
Herbal medicine	8 (27.6)	—	—	1 (3.4)	—	**20 (69.0)**
Homeopathy	2 (6.9)	1 (3.4)	—	—	—	**26 (89.7)**
McKenzie method	**12 (41.4)**	2 (6.9)	—	4 (13.8)	—	11 (37.9)
Medication prescription	2 (6.9)	—	—	1 (3.4)	—	**26 (89.7)**
Nutritional prescription	**18 (62.1)**	3 (10.3)	—	1 (3.4)	—	7 (24.1)
Other orthotics (prescription)	6 (20.7)	—	—	2 (6.9)	—	**21 (72.4)**
Weight reduction program	8 (27.6)	3 (10.3)	—	1 (3.4)	—	**17 (58.6)**

The most frequent category is in ***bold****.*

techniques and treatment modalities investigated, only the Diversified technique was included in the core curriculum of all responding institutions. A considerable proportion of the techniques or modalities studied were not included in the educational activities of the institutions, particularly within the manual tonal or reflex technique, instrument-assisted articular techniques, as well as the other techniques or modalities categories. Surprisingly, exercise prescription, although commonly recommended in clinical practice guidelines for musculoskeletal conditions, was not included in the core curriculum of all the institutions.[14] Techniques that were recently scientifically challenged (functional neurology[15–18] and applied kinesiology[19–21]) were part of the educational activities of more than 40% of the chiropractic educational institutions.

Globally, our results suggest that the portfolio of therapeutic teaching presents diversity between institutions. Because the education background has been associated with the chiropractic practice profile,[7] it is likely that this diversity within therapeutic education perpetuates the diversity within the profession. Although some argue that the diversity of chiropractic approaches presents as a strength for adapting care to various patients, it is also viewed by many as an obstacle to interprofessional collaboration[22,23] and professional development.[24] We argue that a more standardized therapeutic curriculum may prove beneficial to reduce both public and interprofessional confusion toward therapeutic approaches in chiropractic. The Council on Chiropractic Education International provides a general framework for chiropractic education.[25] Each local Council on Chiropractic Education provides its accredited institutions with guidance as to the professional competencies that must be developed by chiropractors, but do not have the mandate to promote specific curriculum content. Gleberzon et al[9] have held workshops during intercollegiate conferences with the objective of developing a proposition for a standardized curriculum of chiropractic techniques. They recommended the following therapeutic procedures be taught within all chiropractic programs: spinal manipulative therapy, instrument adjusting, drop table adjusting, flexion-distraction technique, pelvic blocking, low-velocity low-amplitude mobilizations of the spine and peripheral joints, and manual or instrumented soft tissue therapy.

Although our study does not provide specific information on this classification of adjusting techniques, it appears that soft tissue therapies are taught by the majority, but not the totality, of education institutions. This suggests that the recommendations of Gleberzon et al[9] have not completely been implemented. Although we appreciate the work of Gleberzon et al[9] in successfully developing an agreement within the chiropractic academic community, we propose that a standardized curriculum of therapeutic procedures should also include therapeutic modalities that are not considered as chiropractic techniques. We also believe that the development of a standardized curriculum should consider the best scientific evidence available in order to promote an evidence-based approach to the patient management.[26]

Table 5 - Context of Teaching of Other Techniques or Treatment Modalities, *n* (%)

	Mandatory Entry-to-Practice Program (Core Curriculum)	Elective or Optional Course Within the Entry-to-Practice Program	Post-Entry-to-Practice Degree-Awarding Program	Continuing Education Activities	Independent Student Club	Not a Part of the Institution Educational Activities
Applied kinesiology	1 (3.4)	4 (13.8)	—	3 (10.3)	4 (13.8)	**17 (58.6)**
Chiropractic biophysics (CBP)	—	4 (13.8)	—	1 (3.4)	1 (3.4)	**23 (79.3)**
Functional neurology	5 (17.2)	2 (6.9)	1 (3.4)	4 (13.8)	2 (6.9)	**15 (51.7)**
Medication injection	—	—	—	—	—	**29 (100)**
Minor surgery	1 (3.4)	1 (3.4)	—	—	—	**27 (93.1)**
Postural orientation	11 (37.9)	2 (6.9)	—	2 (6.9)	—	**14 (48.3)**
Total body modification	—	—	—	—	—	**29 (100)**

The most frequent category is in ***bold.***

Our results raise the question of the legitimacy of therapeutic procedures that are not taught in any of our responding chiropractic educational institutions. In many jurisdictions, the techniques that are supported by standards of practice are closely related to the fact that those techniques are currently taught in chiropractic educational institutions. Although other scientific, legislative, and ethical aspects should be considered, this criterion is often viewed as minimal. Consequently, we advocate that the chiropractic community would benefit from promoting the chiropractic techniques that are part of the curriculum of chiropractic educational institutions and that are supported by contemporary scientific evidence. The detailed content of the therapeutic curriculum of each institution should also be publicly available for this criterion to be adequately appreciated.

Our project presents strengths and limitations that should be considered when interpreting our findings. With a response rate of 62% and an important diversity between institutions, it might be challenging to generalize our finding to the nonresponding institutions. The data were collected using a questionnaire specifically designed for this study. Even if we improved its content validity by seeking the input of international experts, and its reliability by combining the answers of 2 respondents, its psychometric properties have not been evaluated. Although the respondents were strategic informants, it may be conceivable that they did not know or recall the detailed context of teaching of all the therapeutic procedures included into their academic program at the time of completing the survey.

CONCLUSION

The portfolio of therapeutic teaching varies greatly between chiropractic education institutions. Only the Diversified technique is universally taught in responding institutions. Recurrent clinical practice guideline recommendations are not taught in some institutions, while controversial techniques are included into the educational activities of a substantial proportion of institutions. A more standardized therapeutic curriculum could prove to be beneficial to reduce both public and interprofessional confusion toward therapeutic approaches in chiropractic.

FUNDING AND CONFLICTS OF INTEREST

We report no conflicts of interest.

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This article was received June 15, 2021, revised August 12, 2021, and accepted September 27, 2021.

Author Contributions

Concept development: IP, PBB, DB, SR, MAB. Design: IP, PBB, DB, SR, MAB. Supervision: MAB. Data collection

and processing: MAB, ED. Analysis and interpretation: ED, IP, PBB, DB, SR, MAB. Literature search: MAB, ED. Writing: MAB, ED. Critical review: IP, PBB, DB, SR, MAB, ED.

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