

Demographic Profile of Chiropractors Who Treat Children: A Multinational Survey



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ABSTRACT

Objective: The purpose of this study was to survey the demographic profile and educational background of chiropractors with pediatric patients on a multinational scale.

Methods: A multinational online cross-sectional demographic survey conducted over a 15-day period in July 2010. The survey was electronically administered via chiropractic associations in 17 countries, using SurveyMonkey for data acquisition, transfer, and descriptive analysis.

Results: The response rate was 10.1%, and 1498 responses were received from 17 countries on 6 continents. Of these, 90.4% accepted pediatric cases. The average practitioner was male (61.1%) and 41.4 years old, had 13.6 years in practice, and saw 107 patient visits per week. Regarding educational background, 63.4% had a bachelor's degree or higher in addition to their chiropractic qualification, and 18.4% had a postgraduate certificate or higher in pediatric chiropractic.

Conclusion: This is the first study about chiropractors who treat children from the United Arab Emirates, Peru, Japan, South Africa, and Spain. Although the response rate was low, the results of this multinational survey suggest that pediatric chiropractic care may be a common component of usual chiropractic practice on a multinational level for these respondents. (*J Manipulative Physiol Ther* 2019;42:1-11)

Key Indexing Terms: *Chiropractic; Child; Pediatrics; Demography*

INTRODUCTION

Demographic characteristics of chiropractors who manage pediatric patients are under-investigated. Chiropractic is a global profession, but minimal data exist to describe the demographic profile and educational background of chiropractors who manage pediatric patients (Table 1).¹⁻⁴

Lee et al¹ in 2000 used data from their survey of chiropractic practices in Boston, Massachusetts, and extrapolated figures concluding that there were approximately 30 million pediatric visits to US chiropractors annually at an estimated total cost of \$1 billion. The National Board of Chiropractic Examiners surveys of the American profession between 1991 and 2014 reported that “the portion of patients under 17 years of age has increased from 9.7% to 17.4%.”⁵ The Chiropractic Association of Australia in 2016⁶ estimated over 1 million pediatric visits to Australian chiropractors yearly.

Parents seek chiropractic care for their children. At the time of this study, 833 responses from 3 separate surveys described all of chiropractic pediatric practice.¹⁻³ These were predominantly from North America and focused on those with a practice that focused on pediatric patients. Marchand⁴ surveyed 956 European chiropractors to investigate pediatric demographics in the general practicing chiropractic population, with a wider geographic approach. The objective of the present study was to investigate further the demographic profile and educational background of chiropractors who serve pediatric patients.

METHODS

Survey Design

The survey was developed after a review of Anglo-European College of Chiropractic projects,^{7,8} peer-reviewed chiropractic survey-based publications,^{9,10} and relevant peer-reviewed literature on conducting survey research.¹¹ The language chosen was exclusively English and was designed to be neutral. The Smart Survey Design document from SurveyMonkey was a particularly useful reference when constructing the questions.¹² Guidelines to be brief, objective, simple, and specific were followed. Dichotomous or multichotomous questions were used to derive basic demographic data. A progress bar was used to show respondents how far along they were in the survey.

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Table 1. *Pediatric Chiropractors Demographic Data*

Country Pediatric Surveys Demographic	US: Lee et al 2000 ¹	US: Alcantara et al 2010 ²	US: Pohlman et al 2010 ³	Europe: Marchand 2012 ⁴
Number of respondents	90	548	218	956
Response rate (%)	60	37	62	Varied from 9.8% in Denmark (n = 51) to 100% in Poland (n = 3)
Male practitioner (%)	65	39.5	26	58.6
Average age	40	—	—	39.9
Years of practice	—	8	14.6	—
Average visits per week	122	133	111	5.3 pediatric patients per week on average for the total respondents

The survey was designed to be completed within 10 minutes without referencing clinical notes. Worldwide chiropractic associations were selected for inclusion. The inclusion criteria were practicing chiropractors who were fluent in English. The Anglo-European College of Chiropractic Research subcommittee for postgraduate studies gave ethics approval. All surveys were anonymous.

Pilot Testing

The survey was piloted with 4 chiropractors with between 5 and 30 years of practice experience and postgraduate qualifications and teaching experience. The survey was tested for face and content validity, with the pilot testers being asked, after completing the survey, to respond to 10 questions relating to the functionality and content of the survey. Minor modifications were made based on this feedback.

Survey Administration

The online survey was administered over a 15-day period between June 24, 2010, and July 9, 2010. The target group was chiropractors on a multinational scale using professional chiropractic associations as a vehicle to deliver the introductory letter with the embedded link to the survey. This aimed to minimize blocking by firewalls and increase the likelihood of the chiropractor opening the email, reading the introductory letter, and clicking on the embedded link. Nineteen associations on 6 different continents agreed to send the introductory research letter via email containing an embedded link to the survey. The participants self-selected by opening the survey through an embedded link in an email from their association. The associations were asked to send out the email to their members twice within a 2-week period.

Data Analysis

Data were analyzed in Survey Monkey and Microsoft Excel using descriptive statistics.

RESULTS

A total of 1498 responses were received from 14 803 addresses emailed, a 10.1% response rate (Table 2). These responses were obtained in the 15 days allotted for data acquisition.

Chiropractic Practitioner Demographics

Of the 1498 respondents, 61.1% (916) were male and 38.9% (582) were female. The average age was 41.4 years. The most common age group was the 30- to 39-year-old at 35.7% (535), with the 40- to 49-year-old group next at 25.8% (387), 50- to 59-year-old at 17.3% (259), 21- to 29-year-old at 14.5% (217), and 60+ at 6.7% (100).

Canadian Memorial Chiropractic College was the most represented chiropractic institution with 21.3% (319) graduates responding, followed by the Anglo-European College of Chiropractic with 11% (165). These 2 colleges together with RMIT University/Phillip-Preston Institute of Technology (9.7% [146]) and Macquarie University/Sydney College of Chiropractic and Osteopathy (8.3% [124]) made up 50.3% of the respondents. The remaining respondents, in descending order, were Palmer College of Chiropractic, 8.0% (120); McTimoney College of Chiropractic, 4.9% (74); New York Chiropractic College, 4.9% (73); National University of Health Sciences, 3.5% (52); University of Glamorgan, 3.4% (51); Life University, 3.1% (46); New Zealand College of Chiropractic, 2.5% (37); Other, 2.3% (35); Logan College of Chiropractic, 2.3% (34); University of Western States, 1.7% (26); Murdoch University, 1.7% (25); North Western University of Health Sciences, 1.6% (24); Durban University of Technology,

Table 2. Response Rate From Chiropractic Associations

Country	Associations	Total Addresses Emailed	Responses	Response Rate (%)
United States	ICA, ANJC, VCA	5200	239	4.6
Canada	OCA, BCCA, SCA, NBCA	4232	474	11.2
Australia	CAA, COCA	2140	289	13.5
United Kingdom	BCA, MCA, UCA, SCA	2360	330	14.0
South Africa	CASA	400	38	9.5
New Zealand	NZCA	250	64	26.0
Spain	AEQ	173	26	15.0
United Arab Emirates	ECA	28	7	25.0
Japan	JCA	11 English fluent (380 members of JCA)	11	100 (2.8)
Other (Peru, Ireland, Italy, Zimbabwe, German, Hong Kong, Indonesia, Netherlands)	CAI, AIC, CAZ, FLAQ, DCG	Clear data not available for these countries or not relevant	20	—

AEQ, Asociación Española de Quiropráctica; *AIC*, Associazione Italiana Chiropratici; *ANJC*, Association of New Jersey Chiropractic; *BCA*, British Chiropractic Association; *BCCA*, British Columbia Chiropractic Association; *CAA*, Chiropractic Association of Australia; *CAI*, Chiropractic Association of Ireland; *CASA*, Chiropractic Association of South Africa; *CAZ*, Chiropractic Association of Zimbabwe; *COCA*, Chiropractic & Osteopathic College of Australasia; *DCG*, Deutsche Chiropraktoren-Gesellschaft; *ECA*, Emirates Chiropractic Association; *FLAQ*, Federación Latino Americana de Quiropráctica; *ICA*, International Chiropractic Association; *JCA*, Japanese Chiropractic Association; *MCA*, McTimoney Chiropractic Association; *NBCA*, New Brunswick Chiropractic Association; *NZCA*, New Zealand Chiropractic Association; *OCA*, Ontario Chiropractic Association; *SCA*, Saskatchewan Chiropractic Association; *SCA*, Scottish Chiropractic Association; *UCA*, United Chiropractic Association; *VCA*, Virginia Chiropractic Association.

1.5% (23); University of Johannesburg, 1.5% (22); Life Chiropractic College West, 1.3% (20); Parker University, 1.3% (20); Southern Californian University of Health Sciences, 1.1% (16); Cleveland University, 0.9% (13); Sherman College of Chiropractic, 0.6% (9); RMIT Japan, 0.5% (8); Texas College of Chiropractic, 0.4% (6); Institut Franco-Européen de Chiropraxie, 0.2% (3); University of Bridgeport, 0.2% (3); Université du Québec à Trois-Rivières, 0.1% (2); Universidad Estatal del Valle de Ecatepec – Mexico, 0.1% (1); and D'Youville College, 0.1% (1).

When analyzed by country of graduation, the United States accounted for 30.9% (463), Canada 21.4% (321), Australia 19.7% (295), the United Kingdom 19.4% (290), South Africa 3% (45), and New Zealand 2.5% (37). Japan (8), France (3), and Mexico (1) composed the remainder, with 2.3% (35) not having their institution listed to allow for country of graduation analysis.

A quarter of respondents (25.4%) had been in practice for less than 5 years (381) with another 22.9% (343) being in practice between 6 and 10 years. The third most frequent time in practice was 21 to 29 years with 16.4% (246), followed by 11 to 15 years with 15.9% (238), 16 to 20 years with 9.9% (148), 30+ years with 8.7% (130), and 0.8% (12) not currently in practice. The average time in practice was 13.6 years.

The largest number of respondents practiced in Canada, with 31.6% (474). The United Kingdom and Australia were the second and third most common country of practice with 22.0% (330) and 19.3% (289), respectively. The United States followed with 16.0% (239), New Zealand with 4.3% (64), South Africa with 2.5% (38), Spain with 1.7% (26), Japan with 0.7% (11), United Arab Emirates (UAE) with 0.5% (7), and Ireland with 0.3% (4). The “Other” category returned 2.8% (42) of the responses, and included Peru, Italy, Zimbabwe, Germany, Hong Kong, Indonesia, and the Netherlands.

The most common average total patient visits per week over the past 3 months was 75 to 129 at 30.5% (457), followed by 30 to 74 at 30.4% (456). The third most common response was 130 to 199 at 16.1% (241). Following these were less than 30 at 13.5% (202), 200 to 299 at 6.3% (95), 300 to 500 at 2.2% (33), and 0.9% (14) reporting seeing an average per week of between 501 and 1000. The average number of visits per week was 107. This was for total visits, not just pediatric patients.

The mode response showed 44.7% (595) had a Bachelor of Science, with 22.3% (297) having a postgraduate certificate. A Bachelor of Arts was reported by 11.3% (151), a Master of Science by 6.2% (83), and a PhD by 1.2% (16). No qualifications were reported by 21.8% (291), and 22% (296) reported “Other” qualifications.

Table 3. *Question 1: Sex*

Country	Female, % (n)	Male, % (n)
Canada: 474	37.6 (178)	62.4 (296)
United Kingdom: 330	47.9 (158)	52.1 (172)
Australia: 289	40.1 (116)	59.9 (173)
United States: 239	32.6 (78)	67.4 (161)
New Zealand: 64	36 (23)	64 (41)
South Africa: 38	42.1 (16)	57.9 (22)
Spain: 26	23.1 (6)	76.9 (20)
Japan: 11	9.1 (1)	90.9 (10)
Peru: 8	0 (0)	100 (100)
United Arab Emirates: 7	28.6 (2)	71.4 (5)
Ireland: 4	50 (2)	50 (2)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

Most respondents, 61.1% (790), indicated they received undergraduate pediatric training. A total of 53.7% (694) indicated they had undertaken postgraduate seminar training in pediatric chiropractic. Also, 12.3% (159) had a postgraduate certificate, 4.3% (55) had a postgraduate diploma, 1.4% (21) had a postgraduate master's degree, and 0.1% (2) of respondents had their PhD in pediatrics. Of those with a postgraduate diploma, 16 were from Canada, 13 from the United States, 12 from the United Kingdom, 6 from New Zealand, 5 from Australia, 2 from Spain, and 1 from Ireland. Of those with a postgraduate master's degree, 14 were from Australia, 6 from the United Kingdom, and 1 from South Africa.

In total, 95.9% (1437) reported they were members of a chiropractic association, and 4.1% (61) were not. Of those who had association membership, 85.9% (1234) noted their association(s).

Of the 1498 respondents, 90.4% (1354) indicated they accept pediatric patients, whereas 9.6% (144) did not.

Countries Represented

Eleven countries generated more than 4 responses, which are reported in Tables 3-12. For sex distribution, the United Kingdom and Ireland were most evenly balanced, whereas Spain, Peru, Japan, and the UAE had greater than 70% male respondents. Notable age variations from the average of 41.4 years were seen in Peru, with 75% of respondents being 21- to 29-year-old men and 25% being 50- to 59-year-old men. South Africa reported 84.2% being under the average age, whereas the United States reported

41.4% as over 50 years old. When considering the institution of graduation, 8 of the 11 had most of the graduates from a local institution. The 3 that did not—Ireland, Spain, and the UAE—did not have a chiropractic institution that had graduated chiropractors in the year of the survey. With the average time in practice being 13.6 years, the United States had 43.9% over 21 years, whereas South Africa had 73.7% under 10 years and Peru had 75% under 5 years in practice. Although the average reported patient visits per week was 107, the United Kingdom, Ireland, and South Africa all reported over 60% seeing 74 patients or fewer. Spain was the outlier in the opposite direction with 50% seeing over 130 visits per week, and 38.5% seeing over 200 visits per week. The reporting of qualifications other than chiropractic showed varying figures. Those countries with respondents reporting no other qualifications ranged from 23.6% to 36.5% in New Zealand, Australia, and the United Kingdom; from 40% to 50% in Japan, Spain, Peru, and Ireland; and at 63.6% in South Africa. Respondents reported 63% to 78% having an additional Bachelor of Arts or Science from New Zealand, Japan, Canada, and the United States. Of the 1498 respondents, 16 (1.1%) reported having a doctorate or PhD. All countries reported all respondents had completed some combination of undergraduate or postgraduate pediatric chiropractic training. A total of 21 (1.4%) respondents report completion of a master's degree in pediatric chiropractic, with 6 in the United Kingdom, 14 in Australia, and 1 in South Africa. Over 95% of respondents accepted pediatric cases, with the largest numbers who did not in South Africa (18.4%), Canada (11.6%), and Japan (9.1%).

DISCUSSION

Although surveys of chiropractors who treat children have been previously done, this is the first to attempt it on a worldwide scale. The results from this survey help to better understand the demographic profile of chiropractors who treat children around the world. Previous chiropractic surveys regarding the demographic characteristics of chiropractors from the United States, European Union, United Kingdom, Australia, New Zealand, Canada, and Switzerland resulted in approximately 10 000 responses.^{2,13-18} Past surveys, which specifically investigated the demographics of chiropractic pediatric practice, included 1789 chiropractors.^{1,2-4} This survey of chiropractors increases the published number of chiropractors who have responded to surveys of their chiropractic pediatric practice by 84%, even with a relatively low response rate of 10.1% in the 15 days it was live. For comparators, Marchand⁴ obtained 956 responses over a 3-month time frame, resulting in a rate of 23.3%, for her survey of European practitioners in 2010. The World Federation of Chiropractic (WFC) ran its multinational consultation on identity in 2004, obtaining 3689 completed responses for a

Table 4. *Question 2: Age*

Country	21-29, % (n)	30-39, % (n)	40-49, % (n)	50-59, % (n)	60+, % (n)
Canada: 474	8 (38)	44.1 (209)	25.5 (121)	15 (71)	7.4 (35)
United Kingdom: 330	18.8 (62)	29.7 (98)	30 (99)	14.9 (49)	6.7 (22)
Australia: 289	23.2 (67)	32.2 (93)	27.7 (80)	12.8 (37)	4.1 (12)
United States: 239	8 (19)	29.3 (70)	21.3 (51)	32.2 (77)	9.2 (22)
New Zealand: 64	9.4 (6)	32.8 (21)	25 (16)	20.3 (13)	12.5 (8)
South Africa: 38	34.2 (13)	50 (19)	13.2 (5)	2.6 (1)	0 (0)
Spain: 26	11.5 (3)	30.8 (8)	42.3 (11)	15.4 (4)	0 (0)
Japan: 11	9.1 (1)	36.4 (4)	27.3 (3)	18.2 (2)	9.1 (1)
Peru: 8	75 (6)	0 (0)	0 (0)	25 (2)	0 (0)
United Arab Emirates: 7	0 (0)	71.4 (5)	14.3 (1)	14.3 (1)	0 (0)
Ireland: 4	25 (1)	50 (2)	0 (0)	25 (1)	0 (0)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

relatively low rate of 12.7%.¹⁹ Yet this WFC survey has been a driving force over the past decade for the WFC's "most appropriate public identity for the chiropractic profession within health care—the spinal health experts in the health care system."¹⁹ This may suggest that broad surveys with relatively low response rates may help to explore the topic further. Comparatively, the WFC survey obtained 1093 more responses from the United States, 205 more responses from Canada, 20 more responses from Australia, and fewer responses from the United Kingdom, New Zealand, South Africa, Spain, Japan, the UAE, and Peru than this 15-day survey. The chiropractic care of children continues to be challenged from outside the profession,²⁰ yet it is globally seen by chiropractors responding to this survey as a common component of usual practice.

The survey showed a profession moving toward a sex balance, with a 60:40 (male:female) ratio. Most surveys from the 1990s to 2017 have shown a greater percentage of male practitioners, particularly in the United States. In 1991, 87% were male, and this shifted only marginally to 73% male in 2015.⁵ Canada¹⁷ in 1997 and Switzerland¹⁸ in 2010 have also shown a greater percentage of male practitioners. The UK report¹⁴ in 2004 demonstrated more sex equality with 55% male practitioners. This trend appears to be reversed when specifically investigating those who accept pediatric patients. As early as 2000 in the United States, when Lee et al¹ investigated the chiropractic care of children, they noted 65% were men, whereas the National Board of Chiropractic Examiners (NBCE) 1998 Job Analysis reported 81% male. Ten years later, a report² of 548 International Chiropractic Pediatric Association members showed 61% were female. Pohlman et al³

targeted practitioners in the United States with a pediatric diplomate and reported 74% were female. Marchand⁶ reported an unequal distribution by age and sex of chiropractors treating pediatric patients, with those older than 38 years being 70% male and those younger than 38 years being 65% female. Continuing education could be considered a marker for interest in a specialty. These figures suggest female practitioners are more likely to see pediatric patients and undergo more pediatric-specific education.

Studies over the past 20 years from Europe¹³ and Boston in the United States¹ have given average practitioner ages of 38 years and 40 years, which are congruent with this data from 2010. Chiropractors who treat children show a larger number being in practice less than 15 years, which is similar to the Swiss¹⁸ and UK¹⁴ surveys. This is in contrast to the change reported in the NBCE surveys² from 1991 to 2015 that show a drop of 40% in the number of practitioners who have been in practice less than 15 years.

The data may suggest an emerging trend. The US demographics have shown a slowed rate of overall growth in practitioner numbers.⁵ Lee and colleagues in 2000 projected that there would be 100 000 chiropractors in the United States in 2010. The reality is that 74 000 licenses were held in 2010, with approximately 50 000 full-time practitioners.⁵ Chiropractic in the United States appears to have met an almost negative growth point. Outside of the United States, where the numbers of practitioners are much lower and the legal status of the profession is in an evolutionary process, the profession is generally in a growth phase.

This evolution can be seen with more chiropractic institutions existing outside the United States than inside the United States since the turn of the century. Thirty-six

Table 5. *Question 3: What Chiropractic Institution Did You Graduate From?*

Country	Institution, % (n)					
Canada: 474	Canadian Memorial Chiropractic College 64.8 (307)	New York Chiropractic College 5.1 (24)	Palmer College of Chiropractic 4.4 (21)	Western States Chiropractic College 4.2 (20)	National University of Health Sciences 3.6 (17)	Life University 2.5 (12)
United Kingdom: 330	Anglo-European College of Chiropractic 45.2 (149)	McTimoney College of Chiropractic 21.2 (70)	University of Glamorgan 15.5 (51)	RMIT University/Phillip Institute of Technology 4.3 (17)	University of Surrey 3 (10)	Macquarie University 2.1 (7)
Australia: 289	RMIT University/Phillip Institute of Technology 38.1 (110)	Macquarie University/Sydney College of Chiropractic and Osteopathy 37.4 (118)	Murdoch University 8.3 (24)	Canadian Memorial Chiropractic College 2.8 (8)	New Zealand College of Chiropractic 2.4 (7)	Palmer College of Chiropractic 2.4 (7)
United States: 239	Palmer College of Chiropractic 23.4 (56)	New York Chiropractic College 18.4 (44)	National University of Health Sciences 13 (31)	Life University 11.7 (28)	Logan College of Chiropractic 7.5 (18)	North Western Health Sciences University 4.6 (11)
New Zealand: 64	New Zealand College of Chiropractic 45.3 (29)	RMIT University/Phillip Institute of Technology 12.5 (8)	Palmer College of Chiropractic 7.8 (5)	Anglo-European College of Chiropractic 7.8 (5)	McTimoney College of Chiropractic 4.7 (3)	Logan College of Chiropractic 4.7 (3)
South Africa: 38	Durban University of Technology/Tecknikon Natal 52.6 (20)	University of Johannesburg/TWR 42.1 (16)	Life University 2.6 (1)	National University of Health Sciences 2.63 (1)	—	—
Spain: 26	Life West Chiropractic College 19.3 (5)	Parker College of Chiropractic 15.4 (4)	RMIT University 11.5 (3)	Life University 11.5 (3)	Anglo-European College of Chiropractic 7.7 (2)	IFEC (France) 7.7 (2)
Japan: 11	RMIT Japan/Tokyo College of Chiropractic 63.6 (7)	Parker College of Chiropractic 9.1 (1)	RMIT University 9.1 (1)	University of Bridgeport 9.1 (1)	National University of Health Sciences 9.1 (1)	—
Peru: 8	Universidade Anhembi Morumbi 50 (4)	Centro Universitario Feevale 12.5 (1)	New York Chiropractic College 12.5 (1)	Life West Chiropractic College 12.5 (1)	Macquarie University 12.5 (1)	—
United Arab Emirates: 7	Anglo-European College of Chiropractic 28.3 (2)	Parke College of Chiropractic 28.3 (2)	University of Johannesburg/TWR 14.3 (1)	National University of Health Sciences 14.3 (1)	Logan College of Chiropractic 14.3 (1)	—
Ireland: 4	Durban University/Tecknikon Natal 25 (1)	Western States Chiropractic College 25 (1)	Macquarie University/Sydney College Chiropractic and Osteopathy 25 (1)	Life West Chiropractic College 25 (1)	—	—

Percentages and number of respondents given are relative to the number of respondents who answered the question.

Table 6. Question 4: How Many Years Have You Been in Practice?

Country	0-5, % (n)	6-10, % (n)	11-15, % (n)	16-20, % (n)	21-29, % (n)	30+, % (n)
Canada: 474	22.6 (107)	27.2 (129)	16.9 (80)	8.4 (40)	13.3 (63)	10.6 (50)
United Kingdom: 330	30.3 (100)	27.6 (91)	12.1 (40)	12.7 (42)	13 (43)	4.2 (14)
Australia: 289	30.5 (88)	15.2 (44)	18.7 (54)	10.4 (30)	17.7 (51)	7.6 (22)
United States: 239	15.1 (36)	13.4 (32)	15.1 (36)	10.9 (26)	28 (67)	15.9 (38)
New Zealand: 64	25 (16)	25 (16)	17.2 (11)	4.7 (3)	20.3 (13)	7.8 (5)
South Africa: 38	42.1 (16)	31.6 (12)	18.4 (7)	0 (0)	2.6 (1)	Not in practice 5.2 (2)
Spain: 26	26.9 (7)	23.1 (6)	11.5 (3)	19.2 (5)	15.4 (4)	Not in practice 3.85 (1)
Japan: 11	36.6 (4)	27.3 (3)	9.1 (1)	18.2 (2)	9.1 (1)	0 (0)
Peru: 8	75 (6)	0 (0)	12.5 (1)	0 (0)	12.5 (1)	0 (0)
United Arab Emirates: 7	14.3 (1)	42.9 (3)	28.6 (2)	0 (0)	14.3 (1)	0 (0)
Ireland: 4	0 (0)	50 (2)	25 (1)	0 (0)	0 (0)	25 (1)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

Table 7. Question 5: In What Country Do You Practice?

Country (Number of Responses)
Canada: 474
United Kingdom: 330
Australia: 289
United States: 239
New Zealand: 64
South Africa: 38
Spain: 26
Japan: 11
Peru: 8
United Arab Emirates: 7
Ireland: 4

Percentages and number of respondents given are relative to the number of respondents who answered the question.

colleges of graduation were given as options for respondents in addition to an "Other" category. Two of the institutions had their precursors listed (International College of Chiropractic/Phillip [Preston] Institute of Technology precursor to RMIT University and Sydney College of Chiropractic and osteopathy precursor to Macquarie University), which leaves a total of 34 colleges listed. Respondents who chose "Other" listed

5 additional institutions. Three of these are now defunct: Oxford Chiropractic College (branched from McTimoney technique, originally called the Witney School of Chiropractic, founded in 1984, which did not accept students after 2001),⁸ the chiropractic master's degree from the University of Surrey in the United Kingdom (1997-2006²¹), and the Pennsylvania Chiropractic College (1984-1995²²). The 2 other institutions reported are in Brazil, the Centro Universitario Feevale and Universidade Anhmbi Morumbi.²³ This survey contains a small but broad representation of most of the chiropractic institutions globally. Countries with chiropractic colleges were the most highly represented with responses to this survey.

The 4 largest respondent groups, in order of volume, were Canada, the United Kingdom, Australia, and the United States. This is not representative of the general chiropractic population due to the limited number of American associations participating in this survey. The responses from the UAE document chiropractor demographics in that country for the first time. The Emirates Chiropractic Association was founded in 2008 and included 28 practitioners in 2010, of whom 25% completed the survey. Similarly, with no previous publications found in English of their chiropractic demographics, this survey appears to be the first to document Japanese and Peruvian practice demographics. No surveys of chiropractic pediatric practice were discovered in the literature relating to either South Africa or Spain, which may mean that this is the first documentation of chiropractic pediatric demographics in those countries as well.

Table 8. *Question 6: Over the Past 3 Months, What Has Been Your Average Patient Visits per Week?*

Country	<30, % (n)	30-74, % (n)	75-129, % (n)	130-199, % (n)	200-299, % (n)	300-500+, % (n)
Canada: 474	11.6 (55)	25.7 (122)	34.2 (162)	18.3 (87)	7 (33)	3.2 (15)
United Kingdom: 330	25.8 (85)	40.3 (133)	25.2 (83)	7 (23)	1.5 (5)	0.3 (1)
Australia: 289	8.3 (24)	26.3 (76)	32.9 (95)	22.2 (64)	8 (23)	2.4 (7)
United States: 239	6.7 (16)	31.8 (76)	30.1 (72)	17.6 (42)	10 (24)	3.8 (9)
New Zealand: 64	14 (9)	21.9 (14)	28.1 (18)	21.9 (14)	7.8 (5)	6.3 (4)
South Africa: 38	26.3 (10)	34.21 (13)	30 (11)	5.2 (2)	2.6 (1)	2.6 (1)
Spain: 26	0 (0)	19.2 (5)	30.8 (8)	11.5 (3)	15.4 (4)	23.1 (6)
Japan: 11	0 (0)	63.6 (7)	27.3 (3)	0 (0)	0 (0)	9.1 (1)
Peru: 8	12.5 (1)	25 (2)	50 (4)	12.5 (1)	0 (0)	0 (0)
United Arab Emirates: 7	28.6 (2)	14.3 (1)	57.1 (4)	0 (0)	0 (0)	0 (0)
Ireland: 4	50 (2)	50 (2)	0 (0)	0 (0)	0 (0)	0 (0)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

Table 9. *Question 7: Other Qualifications (Other Than Chiropractic)?*

Country	Postgraduate Certificate, % (n)	Postgraduate Diploma, % (n)	Bachelor of Arts, % (n)	Bachelor of Science, % (n)	Master of Science, % (n)	Doctorate/ PhD, % (n)	Other, % (n)	None, % (n)
Canada: 474	17.4 (75)	9 (39)	11.8 (51)	59.7 (258)	5.6 (24)	0.5 (2)	9.7 (42)	13.4 (58)
United Kingdom: 330	19.2 (54)	15.3 (43)	7.1 (20)	24.5 (69)	8.9 (25)	2.8 (8)	9.9 (28)	36.5 (103)
Australia: 289	20.1 (49)	18 (44)	2.9 (7)	38.1 (93)	7.4 (18)	0.8 (2)	11.9 (29)	25.4 (62)
United States: 239	40.3 (93)	13 (30)	26 (60)	52.8 (122)	3 (7)	1.7 (4)	5.6 (13)	6.5 (15)
New Zealand: 64	21.8 (12)	12.7 (7)	12.7 (7)	50.9 (28)	7.27 (4)	0 (0)	9.1 (5)	23.6 (13)
South Africa: 38	15.2 (5)	12.1(4)	9.1 (3)	3 (1)	3 (1)	0 (0)	6 (2)	63.6 (21)
Spain: 26	15 (3)	15 (3)	0 (0)	40 (8)	10 (2)	0 (0)	0 (0)	45 (9)
Japan: 11	10 (1)	10 (1)	20 (2)	50 (5)	20 (2)	0 (0)	0 (0)	40 (4)
Peru: 8	28.6 (2)	0 (0)	14.3 (1)	28.6 (2)	0 (0)	0 (0)	14.3 (1)	42.7 (3)
United Arab Emirates: 7	14.3 (1)	42.9(3)	0 (0)	71.4 (5)	0 (0)	0 (0)	14.3 (1)	0 (0)
Ireland: 4	25 (1)	50 (2)	0 (0)	0 (0)	25 (1)	0 (0)	0 (0)	50 (2)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

The average number of patient visits per week in this survey was 107. The method used in the present study followed the method described by Holt et al¹⁶ to determine an average (the midpoint of the range, multiplied by the number of practitioners, sum totaled and divided by the total number of practitioners). A range of average visits per

week is noted from previous surveys. These include the NBCE 2015 survey with an average of 78.5, the United Kingdom's General Chiropractic Council 2004 survey with an average of 63.3, the Swiss 2010 survey with an average of 143.2, the New Zealand 2009 survey with an average of 142, and the Canadian 1997 survey with an average of

Table 10. Question 8: What Chiropractic Pediatric Training Have You Completed?

Country	Undergraduate, % (n)	Postgraduate Seminar, % (n)	Postgraduate Certificate, % (n)	Postgraduate Diploma, % (n)	Postgraduate Master's, % (n)	Other, % (n)
Canada: 474	60.5 (231)	47.6 (182)	12.3 (47)	4.2 (16)	0 (0)	6.5 (25)
United Kingdom: 330	69.1 (231)	54.1 (163)	8.6 (26)	4 (12)	2 (6)	4.3 (13)
Australia: 289	60 (159)	61.5 (163)	16.6 (44)	1.9 (5)	5.3 (14)	6.4 (17)
United States: 239	46.5 (92)	57.6 (114)	17.2 (34)	6.6 (13)	0 (0)	4.6 (9)
New Zealand: 64	70.5 (43)	44.3 (27)	3.3 (2)	9.8 (6)	0 (0)	8.2 (5)
South Africa: 38	76.5 (26)	41.2 (14)	8.8 (3)	0 (0)	2.9 (1)	5.9 (2)
Spain: 26	42.9 (9)	81 (17)	14.3 (3)	9.5 (2)	0 (0)	0 (0)
Japan: 11	87.5 (7)	25 (2)	0 (0)	0 (0)	0 (0)	12.5 (1)
Peru: 8	75 (6)	37.5 (3)	0 (0)	0 (0)	0 (0)	12.5 (1)
United Arab Emirates: 7	60 (3)	80 (4)	0 (0)	0 (0)	0 (0)	20 (1)
Ireland: 4	50 (2)	50 (2)	0 (0)	25 (1)	0 (0)	0 (0)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

Table 11. Question 9: Are You a Member of a Chiropractic Association?

Country	Yes, % (n)	No, % (n)
Canada: 474	95.4 (452)	4.6 (22)
United Kingdom: 330	95.4 (452)	4.6 (22)
Australia: 289	96.5 (279)	3.5 (10)
United States: 239	93.7 (224)	6.3 (15)
New Zealand: 64	98.4 (63)	1.6 (1)
South Africa: 38	89.5 (34)	18.4 (7)
Spain: 26	88.5 (23)	11.5 (3)
Japan: 11	100 (11)	0 (0)
Peru: 8	75 (6)	25 (2)
United Arab Emirates: 7	85.7 (6)	14.3 (1)
Ireland: 4	100 (4)	0 (0)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

158.6.^{5,14,16-18} Surveys that investigated pediatric-specific practitioners included the US 2000 survey with an average of 122, the North American 2010 survey with an average of 133, and the US 2010 survey with an average of 111.¹⁻³ The

figures calculated demonstrate some interesting trends. Countries with small chiropractic populations (New Zealand had approximately 250 doctors of chiropractic in 2009, and Switzerland had approximately 260 doctors of chiropractic in 2010) have similar higher levels of weekly patient visits (142 and 143, respectively). Countries with an established larger population of chiropractors have reported approximately half the practice volume, with the United Kingdom at 63 in 2004, and United States at 78.5 in 2015. Canada stands at odds with this trend with an established population of over 4000 chiropractors reporting an average of 158 patient visits per week in 1997.¹⁷ Current Canadian data were not found, which does not allow for more current comparison. The studies directed specifically at chiropractors with a special interest in pediatric patients show a higher average practice volume, between 111 and 133. This current study was distributed by chiropractic associations and did not specifically target practitioners with a special interest in pediatrics. However, given the nature of the invitation and the introductory page of the survey, it most likely facilitated self-selection of practitioners with such an interest.

There appears to be a trend that chiropractors who accept pediatric patients have a tendency to complete advanced qualifications and continuing education in the area, with over half in this survey having undertaken postgraduate training in pediatrics. Vallone et al in 2010²⁴ commented that all chiropractic programs teach a pediatric component; however, these practitioners chose to supplement their undergraduate training.

Table 12. Question 10: Do You Accept Pediatric Patients Into Your Practice?

Country	Yes, % (n)	No, % (n)
Canada: 474	88.4 (419)	11.6 (55)
United Kingdom: 330	99.1 (327)	0.9 (3)
Australia: 289	97.9 (283)	2.1 (6)
United States: 239	95.8 (229)	4.2 (10)
New Zealand: 64	98.4 (63)	1.6 (1)
South Africa: 38	81.6 (31)	18.4 (7)
Spain: 26	100 (26)	0 (0)
Japan: 11	90.9 (10)	9.1 (1)
Peru: 8	100 (8)	0 (0)
United Arab Emirates: 7	100 (7)	0 (0)
Ireland: 4	50 (2)	50 (2)

Percentages and number of respondents given are relative to the number of respondents who answered the question.

Limitations

The nature of this research creates many limitations. The researcher was biased in survey preparation, and the data were self-reported and biased. Distribution of the survey was dependent on professional associations sending out the e-mails. Realistically, the associations may have been unable to send the e-mail out to all their members because of either technical or other reasons. The survey was online. A multitude of problems may have interfered with access to the e-mail and web link. The participant may have professional or personal biases against or for pediatric chiropractic care and may or may not choose to complete the survey. The participant may input false data; there is no way of preventing this. However, random data sampling demonstrated no clear deviance from considered ranges. The invitation e-mail being sent to the same person with different e-mail addresses may be a confounding factor if they access the survey from different computers.

The survey was nonrandomized and was not focused on a specific sample. This was intentional because the goal of the survey was to gain as wide-ranging and inclusive data on current chiropractic pediatric practice as is practical. Along with this was the short time frame. This was a limitation because less time was allowed for chiropractors to respond. However, it may also have been a strength because it demonstrated the desired snapshot of current practice on a multinational level. The nature of the questions biased the survey.

The survey attained a low response rate of 10.1% over 15 days. For comparison, the WFC's global survey on identity in 2004¹⁹ obtained a response rate of 12.7% over

21 days, and Marchand⁶ obtained a response rate of 23.3% over 3 months. No comparators were obtained for nonrespondents owing to the nature of the distribution of the survey. Any trends observed may not be representative of the general profession and must be interpreted with caution. Further research is recommended in all aspects of pediatric chiropractic care to continue to build the evidence base underpinning this practice.

CONCLUSION

The results of this multinational survey suggest that pediatric chiropractic care is a common component of usual chiropractic practice on a multinational level for these respondents.

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No funding sources or conflicts of interest were reported for this study.

CONTRIBUTORSHIP INFORMATION

Concept development (provided idea for the research): M.F.D.

Design (planned the methods to generate the results): M.F.D.

Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): M.F.D., J.E.M.

Data collection/processing (responsible for experiments, patient management, organization, or reporting data): M.F.D. Analysis/interpretation (responsible for statistical analysis, evaluation, and presentation of the results): M.F.D. Literature search (performed the literature search): M.F.D. Writing (responsible for writing a substantive part of the manuscript): M.F.D.

Critical review (revised manuscript for intellectual content, this does not relate to spelling and grammar checking): M.F.D., J.E.M.

Practical Applications

- This study, with multinational data, provides insights into practitioners who manage children under chiropractic care.
- Of those who responded to the survey, 90.4% accepted pediatric cases.
- The average practitioner was male (61.1%) and 41.4 years old and had 13.6 years in practice.

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