

# CHIROPRACTORS' CHARACTERISTICS ASSOCIATED WITH PHYSICIAN REFERRALS: RESULTS FROM A SURVEY OF CANADIAN DOCTORS OF CHIROPRACTIC



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## ABSTRACT

**Objective:** The purpose of this study was to identify characteristics of Canadian doctors of chiropractic (DCs) associated with the number of patients referred by medical doctors (MDs).

**Methods:** Secondary data analyses were performed on the 2011 cross-sectional survey of the Canadian Chiropractic Resources Databank. The Canadian Chiropractic Resources Databank survey included 81 questions about the practice of DCs. Of the 6533 mailed questionnaires, 2529 (38.7%) were returned and 489 did not meet our inclusion criteria. Our analyzed sample included 2040 respondents. Bivariate analyses were conducted between predetermined potential predictors and the annual number of patients referred by MDs, and negative binomial multivariate regression was performed.

**Results:** On average, DCs reported receiving 15.6 (standard deviation, 31.3) patient referrals from MDs per year and nearly one-third did not receive any. The type of clinic (multidisciplinary with MD), the province of practice (Atlantic provinces), the number of treatments provided per week, the number of practicing hours, rehabilitation and sports injuries as the main sector of activity, prescription of exercises, use of heat packs and ultrasound, and the percentage of patients referred to other health care providers were associated with a higher number of MD referrals to DCs. The percentage of patients with somatovisceral conditions, using a particular chiropractic technique (hole in one and Thompson), taking his/her own radiographs, being the client of a chiropractic management service, and considering maintenance/wellness care as a main sector of activity were associated with fewer MD referrals.

**Conclusion:** Canadian DCs who interacted with other health care workers and who focus their practice on musculoskeletal conditions reported more referrals from MDs. (*J Manipulative Physiol Ther* 2015;38:395-406)

**Key Indexing Terms:** *Chiropractic; Physicians; Referral and Consultation*

Interprofessional collaboration in primary care has been associated with positive provider, system, and patient outcomes.<sup>1</sup> Despite the success of many initiatives,<sup>2-6</sup> Canadian doctors of chiropractic (DCs) are mainly considered as providers of complementary and alternative medicine and

therefore do not share formal referral arrangements with medical doctors (MDs). A study of integrated medical systems has shown that chiropractic care is the complementary and alternative medicine approach that receives the most MD referrals.<sup>7</sup> Generally, half of the surveyed MDs referred at

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least some patients for chiropractic care each year.<sup>7-13</sup> Busse et al<sup>8</sup> outlined that orthopedic surgeons' attitudes toward chiropractic care ranged from very positive to extremely negative. The factors associated with more negative surgeon attitudes included older age and the use of research literature, media, and medical school as a source of information regarding chiropractic. More positive surgeon attitudes were associated with acquiring information regarding chiropractic care through a relationship with a specific DC. They had reservations toward DCs related to a DC's role in managing nonmusculoskeletal complaints<sup>14,15</sup> and adverse events associated with chiropractic care.<sup>14</sup>

Patients appreciate comanagement by MDs and DCs,<sup>16</sup> and recent studies suggest that combined care might be more effective for acute low back pain and tension-type headaches.<sup>17,18</sup> However, MD referrals are often concentrated to selected DCs.<sup>7</sup> Surveying MDs provides a better understanding of their opinions and patterns of referral regarding chiropractic care. Unfortunately, knowing the general opinion of MDs provides limited knowledge about whose DCs will receive their referrals and who will not.

Currently, no studies have investigated the association between individual DC characteristics and the amount of referrals from MDs. Identifying characteristics associated with increased referrals would provide a better understanding of the referral dynamic between MDs and DCs and might benefit both DCs and their organizations. To identify those characteristics, the purpose of this project was to analyze data from the Canadian Chiropractic Resources Databank (CCRD) to study the relationship between DC characteristics and the reported number of MD referrals to Canadian DCs.

## METHODS

### Study Design

We performed a cross-sectional analysis using the 2011 survey of the CCRD.<sup>19</sup> Members of the Canadian Chiropractic Association (CCA) were surveyed through the use of a self-administered questionnaire (mail or online version). The University of Montreal Health Research Ethics Board approved this study (13-106-CERES-D).

### Study Population

The study population includes all Canadian DCs who are members of the CCA and were active in practice in 2011. Doctors of chiropractic practicing another profession (ie, dentist, medical physician, nurse, occupational therapist, physiotherapist, psychologist, or radiologist) or not active in practice (ie, practicing <10 hours per week or 37 weeks per year, retired, or semiretired) were excluded. During the 2011 iteration of the CCRD, 6533 survey questionnaires were mailed to members of the CCA. The respondents could mail back the paper version of the questionnaire or complete the survey online. A total of 1889

questionnaires were mailed back and 640 were completed online for a total of 2529 completed questionnaires. The effective response rate was 38.7%. A total of 489 respondents were excluded because they were practicing another profession, not actively practicing, or had missing answers on the main dependent variable. The current study included 2040 respondents (Fig 1).

### Source of Data

The CCRD survey includes 81 questions about practice of DCs and is used to inform the CCA of services to provide to their membership.<sup>19</sup> For this project, we used information about professional activities, education, research and teaching activities, main sector of activity, care provided to patients, chiropractic techniques used, type of conditions treated, and referral practices.

### Description of the Study Variables

#### *The Annual Number of Patients Referred by MDs (Dependent Variable).*

The annual number of patients referred by MDs was obtained by multiplying the respondent's answers to the following questions:

- The average number of new patients per week
- The average number of weeks practicing chiropractic per year
- The proportion of new patients referred by family physicians and medical specialists in the last year.

*Doctors of Chiropractic Characteristics (Independent Variables).* The survey administered by the CCRD includes multiple items that describe the practice of DCs. The questionnaire contained items classified into 5 category headings: background information (demographics); professional activity; education, training, and affiliations; practice characteristics; and finances and income.<sup>19</sup> Pertinent themes were selected a priori, and our hypotheses on their association with MD referrals are listed in Figure 2.

### Analyses

We generated frequencies (categorical variables) or means and standard deviations (SDs) (continuous variables) for all variables that were determined to be relevant a priori. To investigate nonresponses to the survey, we compared the analyzed sample to the complete CCA membership for all the available characteristics (ie, sex, college of graduation, years of practice, and province of practice) using Student *t* tests and Pearson  $\chi^2$  tests. Bivariate analyses were conducted between all the predetermined independent variables and the annual number of patients referred by MDs using Student *t* tests and analysis of variance for categorical variables and Pearson correlation coefficients for continuous variables. If appropriate, the post hoc test of Games Howell for unequal variances was

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