Austin Journal of Musculoskeletal Disorders

Open Access

Austin Publishing Group

Research Article

Survey of Occupational Injuries to Practicing Chiropractors

Homack DMJ[1] and Hedge A[2]*

[1]Chiropractic Clinical Sciences, New York Chiropractic College, USA

[2]Department of Design and Environmental Analysis, Cornell University, USA

***Corresponding author:** Hedge A, Department of Design and Environmental Analysis, Cornell University, MVR Hall, Ithaca NY 14853-4401, USA

Received: August 02, 2016; **Accepted:** October 03, 2016; **Published:** October 05, 2016

Abstract

This study surveyed a sample of 69 New York State chiropractic doctors to investigate work- related injuries to the neck, back, upper and lower extremities. A majority of respondents (47) were male (68.1%) and 22 were female (31.9%). They were aged between 24 to 65 (mean =40.6, σ = 9.6). Reports of occupational injury were widespread: 21.7% reported injury or pain to the neck region, 30.4% upper or middle back, 44.9% in the low back and 58.0% pain or injury to one or both upper extremities. Patient handling was identified as the primary cause of 24.5% of injuries. Results show that chiropractors are at risk of injury as a result of the demands of practicing their profession. It is recommended that specific techniques and methods of treatment be looked at to identify specific elements that may cause unneeded injury risk.

Keywords: Chiropractor; Musculoskeletal injuries; Survey

Introduction

The primary treatment delivered by most chiropractors is often very physical in nature and tends to be performed in awkward postures repeatedly throughout each workday. To date, little scientific data has been collected on the injuries that are incurred by the practitioner in delivering this therapy.

The National Institute for Health [1] and researcher on industrial work [2] reports that 70 to 85% of all people experience back pain at some time in life, with an annual prevalence of 15-45%. Chiropractors have been reported to be a high-risk group for Low Back Pain (LBP) [3], with a prevalence of 87% overall back pain and 74% low back pain. Low back is the most frequently injured body part as reported by nursing staff [4]. Frequent patient handling activities have been shown to correlate with an increased incidence of low back complaints in nurses [5,6], with a lifetime prevalence of 35% to 80%. Adjustment table height has been found to correlate with the prevalence of low back pain for chiropractors [7]. Other health care related injuries and occupational risks to chiropractors, physical therapists, occupational therapists, and massage therapists were also reviewed for this research.

There are 75,000 chiropractors in the USA and the profession is growing [8]. However, detailed occupational injury information for chiropractors is lacking, and further investigation is warranted. The present study specifically investigated what types of occupational musculoskeletal injuries are prevalent in practicing chiropractors; what specific activities increase their occupational risk factors for musculoskeletal injuries; and what other factors influence the occupational injury risk of a musculoskeletal injury to the practitioner? The aim of this study was to use a survey to identify the occupational risk factors for musculoskeletal injuries or conditions that afflict practitioners of the chiropractic profession.

Methods

Survey sample

The target population included doctors of chiropractic who are licensed to practice in New York State. Initially, a representative random sample of 1,167 chiropractors (from approximately 8,000 licensed in New York) was selected from across the state. Each was solicited by mail to participate in the study, and after 4 weeks, follow-up phone calls were placed to 223 of those who did not respond. Finally, after an additional 8 weeks, a general e-mail request was distributed to a list of chiropractors that were in addition to the original list of contacts, resulting in several more responses over the subsequent 12 weeks. The resulting survey responses were reviewed for accuracy, completion of information and duplication, resulting in 69 valid complete survey responses.

Survey questionnaire

A comprehensive survey was constructed and administered online via the internet. The survey itself was divided into four distinct sections. Three sections asked about injuries the neck and back, upper extremities, and lower extremities. The survey was dynamic in the sense that number of questions expanded according to responses to specific earlier questions. If a respondent, for example, selected the upper extremity as a region in which they had experienced discomfort or pain that section would expand to collect more specific information regarding the nature of the complaint. The severity of each condition was rated as mild, moderate or severe. Questions regarding how the injury or condition first occurred were included. Information on provocative factors and how particular conditions affect the way, in which the chiropractor practices, such as techniques that aggravated the condition, were included as well. The survey allowed the respondent to report on other regions and incidences of injury or discomfort, if there were multiple occurrences or several injuries.

Hedge et al. © All rights are reserved

Citation: Homack DMJ and Hedge A. Survey of Occupational Injuries to Practicing Chiropractors. Austin J Musculoskelet Disord. 2016; 3(2): 1036.

Table 1: Injuries by body region and gender.

Region	Females (n=22)	Males (n=47)	Ratio M:F[2]	Binomial Probability[3]
Any Injury	18	40	0.450	P=0.006
Neck	4	11	0.364	P=0.063
Upper Mid-Back	6	15	0.400	P=0.044
Rib[1]	0	8	0.000	P=0.002
Low Back	10	21	0.476	P=0.039
Shoulder	9	14	0.643	P=0.128
Elbow	2	7	0.286	P=0.095
Wrist	5	14	0.357	P=0.038
Hand/Finger/Thumb	2	11	0.182	P=0.016
Hip/Thigh	0	2	0.000	P=0.283
Knee	3	0	-	P=0.048

[1]Rib involvement separated from the upper-middle back region.
[2]Calculated with an expected proportion of 0.468 (47 males: 22 females, N = 69). Males are considered more likely when the ration is less than 0.468.
[3]Values considered significant at P < 0.050. Confidence index set to 99%.

The demographic section collected data on geographic region, educational preparation and experience, physical descriptions and body habitus, practice style, as well as age, gender, ethnicity and education. All respondents were required to complete this section.

The survey was initially created in word processor software (Microsoft Word) and later transferred to hypertext markup language software (Microsoft Front Page) for use on a computer Internet server. The instrument was posted on an internet web server located in the Human factors and Ergonomics Laboratory at the Department of Human-Environmental Analysis at the school of Human Ecology at Cornell University, Ithaca, New York. A period of development and refinement ensued, including a pilot run of the survey designed to ensure the internal validity and accuracy of the instrument. This pilot was also used to verify the collection and processing methods of the data.

Procedure

Data was collected using a web survey and telephone survey. Targeted chiropractors were initially notified of the survey by mail, which gave a brief description and explanation of the survey and its purpose, and how long the survey should take to complete. The estimated time to complete survey varied from 15 minutes to 2 hours, depending on the respondents' history and responses to the questions. A web address to the website was included in the text of the letter.

An identifier code was included as well to track compliance, but it was not linked to any of the information collected. This was used to ensure the anonymity of the respondents. The code also served as a safeguard to minimize the risk of multiple submissions from any one respondent. The study was approved by the Cornell University Institutional Review Board.

Data analysis

All collected data was entered into a computer. Analysis was conducted using a statistical software package for social sciences (SPSS version 24) to summarize descriptive statistics and for statistical analysis.

Results

The total number of correctly completed survey results from practicing doctors of chiropractic was 69. Of the respondents, 47 were male (68.1%) and 22 were female (31.9%), with ages distributed between 24 to 65 (mean = 40.6, σ = 9.6). All injuries were self-reported by respondents. In the axial skeletal region, 15 (21.7%) reported injury or pain to the neck region, 21 (30.4%) in the upper or middle back, and 31 (44.9%) in the low back. A total of 40 respondents (58.0%) indicated they had pain or injury to one or both upper extremities (UE). Twenty-three (33.3% of total respondents) reported shoulder involvement. Nine (13.0%) reported elbow, 19 (27.5% of total) reporting wrist, and 13 (18.8%) reporting hand/finger/thumb complaints. Only 5 (7.2%) reported Lower Extremity (LE) involvement of those, 2 (2.9% of total; 40.0% of LE) reported hip or thigh complaints, and 3 (4.3% of total; 60.0% of LE) reported knee complaints. There were some significant differences in injuries by gender (Table 1). Broken down by type of injury, muscular strains represented the highest reported injury for both single and cumulative number of occurrences (33.6%). Other injuries included 15.3% for strains, and 10.3% for tendonitis. Also represented were disc injuries or radiculopathies (8.0%), internal joint dysfunction (9.0%), peripheral neural involvement (9.3%), and a single report of vascular involvement. Of the 23 shoulder complaints, specific injuries were represented as follows: 3 reported as Thoracic Outlet Syndrome (TOS), 4 reported labral tears, and 3 reported internal joint derangements. Eleven reported "other muscular strain" and 1 reported acromioclavicular sprain. Ten respondents reported bicipital tendonitis/tendinopathy, and 5 reported shoulder complaints not otherwise specified.

Of the elbow complaints reported, there were 8 reporting tendonitis/ tendinopathy/ epicondylitis, 2 reported neural involvements, 2 reported ligamentous sprain, and 4 reported muscular strain.

Wrist tendonitis/tendonopathy was reported by 9 respondents. One reported neural involvement, 3 reported internal joint derangements, 14 reported ligamentous sprain and 12 reported muscular strains. Three respondents reported non-specific pain or discomfort not otherwise described. Five responded to hand/finger/

thumb tendonitis/tendonopathy or trigger finger. One noted neural involvement, 3 selected internal joint derangements, 10 reported ligamentous sprain of the hand or fingers, and 5 reported muscular strain. One individual respondent reported hand/finger/thumb complaints not otherwise specified.

Two respondents (2.9% of total reported injuries) reported Iliotibial Band (ITB) syndrome, which was the only injury, pain or discomfort reported for the hip and thigh region. Two respondents reported ligamentous sprain to the knee, and three reported muscular strain of the knee area or lower leg. No other regions of the LE were reported by the respondents, including that of the ankle, foot and toe regions.

Patient handling was identified most frequently as the primary cause of injury among the respondents (24.5% of the reported injuries). This was followed by unknown etiology or insidious onset (21.4%) and performing a chiropractic adjustment (19.7%). Of the injuries incurred while adjusting patients, the majority of injuries occurred during the activity of side posture adjusting. Furthermore, the most identifiable association between specific injuries to a particular activity was side posture adjusting and low back and shoulder strains, followed by patient handling and low back muscular strains. Working while fatigued was identified as a contributing factor for 11.7% of the injuries, and working in an awkward or cramped position was identified for 9.0% of the injuries reported.

Discussion

Although we found a lower prevalence of self-reported back injuries among the sample of chiropractors than has previously been reported [3], the survey data show that chiropractors can suffer a wide range of musculoskeletal injuries. Because of the very physical nature of typical chiropractic practice, it is important to identify and reduce any unnecessary injury risk. It was hoped that educational background and training, body morphology, and specific techniques could be analyzed; however, there was insufficient diversity within the population of respondents to identify these associations with any statistical certainty. All of the respondents reported treating patients with manual adjustive procedures (such as Diversified Technique) either exclusively or as an adjunct to other procedures and techniques. Future research could usefully explore any associations between techniques and reported injuries.

Not unlike other health care professionals such as nurses, patient handling was found to be a significant risk for occupational injuries to chiropractors. Moreover, the added stresses incurred by the manual means by which chiropractors most often treat their patients contribute significantly to the type and severity of these injuries. Preliminary analysis of the amount of time lost from work and other influences occupational injuries have on chiropractic practices suggest a reluctance of doctors of chiropractic to take time off and a propensity to work through injuries. The survey results show evidence that chiropractors are at risk of injury as a result of the demands of practicing their profession. The anatomical structures most at risk of being injured include the low back, the shoulder and wrist. The frequently reported type of injury is muscular strain, followed by ligamentous sprain. Patient handling and delivering side posture adjustive procedures were identified most frequently as the activity resulting in the most reported injuries.

The limitations of this survey are that all injuries were self-reported rather than clinically diagnosed, and it was not possible to differentiate between any predisposed diseases and current injury reports. These limitations should be addressed in future investigations, and such work should also consider populations in other geographical regions and with other educational backgrounds and are encouraged to compare the results with these findings. Furthermore, it is recommended that specific techniques and methods of treatment be looked at to identify specific elements that may cause unneeded injury risk.

Acknowledgement

This research was funded by a grant from the College of Human Ecology, Cornell University.

References

1. National Institutes of Health. Research on Low Back Pain and Common Spinal Disorders. NIH Guide PA-97-1058. 2005; 26.
2. Andersson GBJ. Epidemiologic aspects on low-back pain in industry Spine. 1981; 6: 53-60.
3. Mior SA, Diakow PRP. Prevalence of back pain in chiropractors. J Manipulative Physiol Ther. 1987; 10: 305-309.
4. US Department of Labor, Bureau of Labor Statistics. Nonfatal cases involving days away from work: selected characteristics. (1992-2001).
5. Hignett S. Postural analysis of nursing work. Appl Ergon. 1996; 27: 171-176.
6. Hignett S. Work-related back pain in nurses. J Advanced Nursing. 1996; 23: 1238-1246.
7. Lorme KJ, Naqvi SA. Comparative analysis of low-back loading on chiropractors using various workstation table heights and performing various tasks. J Manipulative Physiol Ther. 2003; 26: 25-33.
8. Anon. The Current Status of the Chiropractic Profession. Report to the World Health Organization from the World Federation of Chiropractic. December. 2012.

Austin J Musculoskelet Disord - Volume 3 Issue 2 - 2016
ISSN : 2381-8948 | www.austinpublishinggroup.com
Hedge et al. © All rights reserved

Citation: Homack DMJ and Hedge A. Survey of Occupational Injuries to Practicing Chiropractors. Austin J Musculoskelet Disord. 2016; 3(2): 1036.