Retrospective Demographic Analysis of Patients Seeking Care at a Free University Chiropractic Clinic

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Abstract

Objective: The purpose of this study was to describe the demographics, presenting complaints, and health history of new patients seeking treatment at a free chiropractic clinic within a university health center.

Methods: A retrospective analysis of patient files from 2008 to 2009 was performed for a free student chiropractic clinic in the Buffalo, NY, area. Demographics, presenting complaints, and health history of new patients seeking treatment were recorded.

Results: There were 343 new chiropractic patient files. Most patients were between the ages of 18 and 30 years ($n = 304$, 88%) with an almost equal distribution of men ($n = 163$, 48%) and women ($n = 180$, 52%). The patients were mostly single ($n = 300$, 87%). Patients self-reported that their case histories excluded a current medical diagnosis ($n = 261$, 76%), previous history of disease ($n = 216$, 63%), allergies ($n = 240$, 70%), previous surgical procedures ($n = 279$, 81%), and medication use ($n = 250$, 73%). The frequencies of spinal complaints were as follows: lumbar spine, $n = 176$ (51%); cervical spine, $n = 78$ (23%); and thoracic spine, $n = 44$ (13%). Maintenance care, headaches, and spine-related upper and lower extremities complaints accounted for the other 13% of patients treated. Half were chronic ($n = 172$, 50%), and a third were acute ($n = 108$, 31%). Patients averaged 6 chiropractic visits, with 88% having 11 visits or less.

Conclusion: This study found that new patients seeking care at a free student chiropractic clinic within a university health center in the Buffalo area mainly consisted of young single adults, with chronic lumbar spine complaints with few comorbidities.

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Introduction

Cost, lack of insurance, type of insurance, and transportation are types of access barriers for patients seeking chiropractic care.¹ Many studies on demographics and clinical characteristics of chiropractic patients exist in the literature. Research indicates that chiropractic patients in the United States are between 38 and 45 years of age, approximately 60% female, and mostly white and well educated, and between 41% and 68% have low back pain as a chief complaint.^{2–5} Practice analyses of the chiropractic profession confirm these data on demographics and clinical characteristics of chiropractic patients.^{6–8} The demographics of chiropractic patients in Australia and Europe are similar to those in the United States.^{9,10} The literature also describes chiropractic care of children, birth through adolescence,^{11–15} and older adults.^{16–21}

An understudied population relative to access to chiropractic care and patient characteristics is young adults 18 to 29 years of age. Although this age group accounts for only 16% of office visits in the United States,^{6–8} previous research on demographics and patient characteristics of young adults was limited to cases at chiropractic teaching clinics. A large-scale study of a chiropractic teaching clinic indicated that there were 1040 patients (52%) between the ages of 21 and 34 years old.²² The primary complaint of patients in this study was acute or subacute low back pain, which showed improvement after an average of 4.4 treatment visits.²² A subsequent study comparing demographics and patient characteristics at 6 chiropractic teaching clinics revealed that mean patient age ranged from 34 to 43 years, with 5 of the 6 clinics having 64% to 77% of their patients in the age of group of less than 40 years.²³ The most frequent primary complaint was low back pain, 21% to 41%, with the majority of these low back pain complaints being chronic in nature, 64% to 80%.²³ A 5-year study of patients treated at the Canadian Memorial Chiropractic College ($n = 15,174$) indicated that 26.1% were students and that the most frequent site of the chief complaint was cervical spine (32.4%) followed by the lumbar spine (24.4%) for the study sample.²⁴ The musculoskeletal conditions in the study sample were chronic, subacute, and acute in nature, and the average number of treatment visits was 6.6.²⁴

More recent studies on chiropractic teaching clinics reported that 20% to 32% of patient populations were young adults 20 to 39 years of age, with chronic low back pain being the primary complaint reported in these study

samples.^{25,26} Most recently, 30% of patients treated at a chiropractic teaching clinic were young adults 18 to 30 years of age, and low back pain (31.3%) was the most frequent chief complaint of all patients treated.²⁷

The information gleaned from these studies on young adults is limited because the data were not consistently or specifically described for young adults. Preliminary survey data indicated that acute or subacute low back pain was the primary complaint of young adults 18 to 29 years of age seeking care at a free chiropractic clinic within a university health center.¹ A free student health center provides an opportunity to focus on demographics and patient characteristics of young adults 18 to 29 years of age seeking chiropractic care. Although the free student health center is limited to enrolled university students, this sample of students addresses access barriers of cost and transportation for young adults seeking chiropractic care.¹ This student sample also avoids the bias of young adults being chiropractic students who receive multiple spinal manipulations during their educational training and have no behavioral barriers toward chiropractic care. Contributing information to literature on clinical characteristics of chiropractic patients 18 to 29 years of age will add to our understanding of chiropractic care across the lifespan.

The purpose of this study was to describe the demographics, presenting complaints, and health history of new patients seeking treatment at a free student chiropractic clinic within a university health center.

Methods

The SUNY Buffalo Health Sciences Institutional Review Board approved this study. All patients signed Health Insurance Portability Accountability Act release forms at their first clinic visit and before receiving chiropractic care. All new chiropractic patient files from January 2008 to December 2009 at a free university chiropractic clinic in Buffalo, NY, were identified for retrospective analysis. Patient files needed to be inactive for a year or more at the time of review to be included in the retrospective analysis. Patients younger than 18 years were excluded from this study because of difficulty in attaining appropriate parental release. Methods for recruitment of new patients included referrals from medical physicians and other health care professionals at the university health center, university health center Web site, posters

on bulletin boards throughout the university, e-mail distribution lists advertising services offered by the university health center, referrals from friends and family, and self-referrals.

In hard copy, the principal investigator separated patient files by year of first visit, alphabetized by last name, and then assigned the patient file a number. Using the assigned number, the principal investigator blinded the sources of data for retrospective analysis. Sources of data were clinic intake surveys that provided information on age, sex, marital status, duration of complaint, referral source, health history, and social history. Body pain diagrams were sources of data to identify primary, secondary, and tertiary complaints. All these sources of data were patient reported. The principal investigator also compiled the number of treatment visits for each patient file.

The self-reported age was classified into categories of 18 to 20, 21 to 30, 31 to 39, more than 40 years, and unknown. Sex was male or female. Marital status was single, married, divorced, or unknown. Duration of complaint was classified as acute (0-3 weeks), subacute (1-3 months), chronic (>3 months), maintenance (no self-reported complaint), and unknown (information missing on intake form). Referral sources included medical physicians, dentistry, other health care professionals, Web site, posters, e-mail, friends and family, self, and unknown (information missing on intake form).

Health history consisted of current/previous medical diagnoses, allergies, previous surgical procedures, medications, and previous providers. In the previous history section, a mental health disorders category included medically diagnosed depression, anxiety, and bipolar disorders.

Social history data gathered included exercise, smoking, and alcohol use. Patients self-reported exercise as none, occasional (not weekly), light (1-2 times per week), moderate (3 times per week), or frequent (more than 3 times per week). Smoking data were categorized as none, occasional (1-3 cigarettes not on a daily basis), light (<0.5 pack a day), moderate (0.5-1 pack a day), and frequent (>1 pack a day). Alcohol consumption was categorized as light (<5 drinks a week), moderate (5-10 drinks a week), and frequent (>10 drinks a week) on the intake form.

As described in a previous study,²⁸ primary, secondary, and tertiary complaints were classified as lumbar spine, thoracic spine, cervical spine, headache, upper extremity, lower extremity, miscellaneous, and none. The chief complaint was the most painful complaint that was marked on the body pain diagram

on the patient's initial visit. Patients also indicated secondary and tertiary complaints by marking the body pain diagram.

The data management process has been described in detail previously.²⁸ In brief, coinvestigators entered the blinded sources of data into Microsoft Excel 2010 (Microsoft Corp, Redmond, WA). A manual double-entry verification process was instituted to ensure the accuracy of data entry. Descriptive statistics were generated by the principal investigator using Microsoft Excel 2010.

Results

Demographics and Referral Data

Demographic and referral data are presented in Table 1.

Health History

As can be seen in Table 2, the majority of patients self-reported that their case histories excluded current diagnosis (n = 261, 76%), previous history of illness or injury (n = 216, 63%), allergies (n = 240, 70%), previous surgical procedures (n = 279, 81%), and medication use (n = 250, 73%). Asthma was the most common current diagnosis, whereas previous health history included respiratory conditions as the most common. Approximately one-third of the patients had at least 1 allergy (n = 103, 30%), with seasonal allergies being the most common. Some of the patients underwent previous surgical procedures (n = 64, 19%). Patients most commonly used medications for birth control, depression/anxiety, asthma, and allergies. The majority of patients indicated that they did not go to a previous providers for their chief complaint (n = 214, 62%). Past visits to medical physicians, doctors of chiropractic, and physical therapists were the most common.

Social History

The majority of patients were nonsmokers (n = 280, 82%) and exercised regularly (Table 3). The majority of patients reported that they either did not drink alcohol (n = 174, 51%) or drank alcohol in moderation (n = 116, 34%).

Table 1 Demographic and Referral Data (N = 343)

Sex	
Male	163 (48%)
Female	180 (52%)
Age	
18-20	76 (22%)
21-30	228 (66%)
31-39	31 (9%)
40+	7 (2%)
Unknown	1 (<1%)
Marital status	
Single	300 (87%)
Married	30 (9%)
Divorced	1 (<1%)
Unknown	12 (3%)
Complaint	
Acute	108 (31%)
Subacute	50 (15%)
Chronic	172 (50%)
Maintenance	2 (<1%)
Unknown	11 (3%)
Referral source	
Dental department	8 (2%)
E-mail	6 (2%)
Friend/family	88 (25%)
Medical	66 (19%)
Other professional	21 (6%)
Poster/sign	11 (3%)
Self	102 (29%)
Web site	28 (8%)
Unknown	17 (5%)
Total	347 ^a (100%)
No. of visits	
1-3	173 (50%)
4-7	96 (28%)
8-11	35 (10%)
12-15	16 (5%)
16-19	9 (3%)
20-29	4 (1%)
30-39	6 (2%)
40-49	2 (<1%)
50-59	2 (<1%)

Values are expressed as n (%). Age: mean, 24.3; median, 24; range, 18-61. Visit: average, 6; median, 4; range, 1-59.

^a Four patients had 2 referral sources.

Location of Complaint

There were a total of 478 primary, secondary, and tertiary complaints (Table 4). The majority of patients only had 1 complaint (n = 229, 67%). The frequencies of primary spinal complaints were as follows: lumbar spine, n = 176 (51%); cervical spine, n = 78 (23%); and thoracic spine, n = 44 (13%). The majority of the secondary complaints were in either the lumbar spine or cervical spine. Tertiary complaints were very limited in

number. Only 2 patients visited the chiropractic clinic for maintenance care, that is, did not report a complaint on the body diagram.

Discussion

The demographics, presenting complaints, and health history of new patients being treated at a free chiropractic clinic within a university health center were single adults 18 to 30 years of age with chronic lumbar spine complaints and few medical events and diseases in their case histories. The equal distribution of women and men was similar to frequencies reported by other chiropractic teaching clinics.^{23,24,27} The higher percentage of 21 -to 30-year-old patients as compared with 18- to 20-year-old patients may be due to the fact that the free student health center was located on the graduate campus (medical, nursing, dental, and other graduate programs), creating more convenient access for professional and graduate students as compared with undergraduate students. However, our sample met the purpose of the study to describe demographics and clinical characteristics of young adults seeking chiropractic care.

The primary complaint of low back pain is consistent with previous studies on clinical characteristics of patients seeking care at either private practice offices²⁻⁵ or chiropractic teaching clinics.^{22,23,25-27} Collectively, 87% of the primary complaints involved the lumbar, cervical, or thoracic spine. As such, it may be concluded that young adults presenting to the free chiropractic clinic within a university health center were seeking musculoskeletal spine care. Our findings were consistent with data from medical and dental students that indicated that neck pain (41.8%-58.1%) and low back pain (46.1%-52.7%) were prevalent in these sample populations.^{29,30} Prolonged sitting while attending classroom lectures and studying, long training hours, and ergonomics of training postures, for example, dental motor skills, prolonged standing, computer work, and laboratory bench work, are all possible factors that contribute to musculoskeletal spine pain in graduate and professional school students.²⁹⁻³²

The frequencies of chronic (50%), acute (31%), and subacute (15%) primary complaints were consistent with previous descriptive research on patient characteristics at chiropractic teaching clinics.²²⁻²⁴ The average utilization rate of 6 chiropractic visits at the free student health center was similar to previous

Table 2 Health History (N = 343)

Current medical diagnosis	
No diagnosis	261 (76%)
≥ 1 Diagnosis	82 (24%)
Anxiety	5 (1%)
Asthma	33 (10%)
Bronchitis	1 (<1%)
Depression	17 (5%)
Diabetes	2 (<1%)
Disk	4 (1%)
Extremity	3 (<1%)
Headaches	9 (3%)
High blood pressure	3 (<1%)
High Cholesterol	2 (<1%)
Thyroid	8 (2%)
Total reported diagnoses ^a	87 (24%)
Previous history	
No diagnosis	216 (63%)
≥ 1 Diagnosis	127 (37%)
Blood	16 (3%)
Endocrine	7 (1%)
Gastrointestinal	5 (1%)
Gynecologic	8 (2%)
Headache	30 (6%)
Mental health disorder	28 (5%)
Musculoskeletal	32 (6%)
Respiratory	40 (7%)
Urinary	29 (5%)
Miscellaneous	6 (1%)
Total reported diagnoses ^a	201 (37%)
Allergies	
No diagnosis	240 (70%)
≥ 1 Diagnosis	103 (30%)
Animals	10 (3%)
Food	15 (4%)
Medication	29 (8%)
Seasonal	47 (14%)
Miscellaneous	2 (<1%)
Total reported allergies ^a	103 (30%)
Previous surgical procedures	
No diagnosis	279 (81%)
≥ 1 Diagnosis	64 (19%)
Dental	2 (<1%)
Endocrine	29 (8%)
Gastrointestinal	15 (4%)
Musculoskeletal	18 (5%)
Skin	2 (<1%)
Miscellaneous	8 (2%)
Total reported previous surgical procedures ^a	74 (19%)
Medications	
No diagnosis	250 (73%)
≥ 1 Diagnosis	93 (27%)
Allergies	16 (3%)
Antibiotic/antiviral	2 (<1%)
Asthma	25 (4%)
Birth control	34 (6%)
Cardiovascular	3 (<1%)
Gastrointestinal	3 (<1%)
Headache	3 (<1%)

Table 2 (continued)

Current medical diagnosis	
Depression/anxiety	28 (5%)
Pain	28 (5%)
Skin/hair	3 (<1%)
Thyroid	5 (1%)
Urinary	3 (<1%)
Miscellaneous	1 (<1%)
Total reported medication use ^a	154 (27%)
Previous provider	
None	214 (62%)
Previous provider	129 (38%)
Doctor of chiropractic	45 (10%)
Massage therapist	3 (<1%)
Medical	74 (17%)
Physical therapist	42 (10%)
Trainer	1 (<1%)
Total reported ^a	165 (38%)

Values are expressed as n (%).

^a Multiple per person; percentages adjusted to represent percentages of cases reporting positive responses in health history.

studies that reported average utilization rates of 4.4 and 6.6 treatment visits at chiropractic teaching clinics.^{22,24} However, the majority of patients (50%) seeking care at the free student health center came for only 1 to 3 chiropractic visits. A further breakdown of the data by the number of chiropractic visits and symptom duration and in combination with patient outcomes would have been necessary to provide detailed insights on utilization rates of chiropractic services at the free student health center. There were 4 patients with 40 or more chiropractic visits, but all of these patients had medically diagnosed mental health disorders. Prevalence of musculoskeletal symptoms in high-psychological-distress groups was higher than that of low-psychological-distress groups especially in the neck and back regions.³³ In addition, high-psychological-distress groups with musculoskeletal pain tend to have greater utilization of chiropractic health care services.^{34,35}

The self-reported medical and social histories indicated that our study population was healthy and engaged in healthy behaviors. There were a low percentage of patients with current/previous medical diagnoses, allergies, or surgical procedures or using medications. A high percentage of patients did not smoke; consumed alcohol, if any, in moderation; and exercised regularly. However, the use of valid and reliable assessment tools to collect self-reported data on smoking, drinking, and exercise behaviors in primary care settings remains challenging.^{36–38}

Table 3 Social History (n = 343)

	Smoking	Exercise	Alcohol
None	280 (82%)	26 (8%)	174 (51%)
Occasional	3 (<1%)	0 (0 %)	7 (2%)
Light	9 (3%)	1 (<1%)	17 (5%)
Moderate	14 (4%)	194 (57%)	116 (34%)
Frequent	7 (2%)	105 (31%)	10 (3%)
Unknown	28 (8%)	17 (5%)	19 (6%)
Previous	2 (<1%)	N/A	N/A

Values are expressed as n (%). Exercise: none, occasional (not weekly), light (1-2 times per week), moderate (3 times per week), or frequent (more than 3 times per week). Smoking: light (<0.5 pack a day), moderate (>0.5-1 pack a day), frequent (>1 pack a day). Alcohol: light (<5/wk), moderate (5-10/wk), frequent (>10/wk).

The majority of referrals were self-referrals, friends and family, and medical in origin. The determinants of self-referrals to chiropractic physicians include patient attitudes, better health status, and affordable costs.^{39,40} Although patient attitudes were unknown in the current study, access to chiropractic care was free, and information from the medical and social histories indicated that the young adults were healthy. Referrals from family and friends may have influenced the patient's confidence in the doctor of chiropractic's ability to successfully treat their musculoskeletal spine pain, which is a determinant of seeking chiropractic care.³⁹

The medical, dental, and chiropractic physicians were located within the same free student health center. Previous research reported that access barriers of transportation, cost, and insurance benefits were not present for students seeking chiropractic care at a free university health center.¹ In the current study, removing geographic constraints and economic considerations may have improved interprofessional communications and discussions and provided an opportunity to reduce bias and enhance knowledge and understanding of chiropractic care, thereby facil-

itating interprofessional referrals.⁴¹ Removing geographic constraints also aligns with referral patterns of medical doctors to doctors of chiropractic, in which medical patients are expected to contact the doctor of chiropractic on their own.⁴²

Limitations and Future Studies

A retrospective study design limits external validity. Self-selection bias was present. The descriptive findings may not be generalized to other university health centers or non-college-attending young adults. The unknown reliability and validity of the patient intake form, recall bias, and social desirability bias may have affected self-reported medical and social histories. Information bias from the retrospective chart analysis cannot be ruled out. The retrospective analysis did not include patient outcomes data and did not compile symptom duration data by number of chiropractic visits and location of primary complaint.

Despite these limitations, patient characteristics revealed in this descriptive study indicated that a free chiropractic clinic within a university health center provided chiropractic students with an appropriate clinical training opportunity for treating musculoskeletal spinal complaints. In support of this conclusion, the median utilization rate of 4 chiropractic visits and better health status of our study sample were consistent with practice activities of doctors of chiropractic for patients with chronic low back pain.⁵ However, data on dose-response and efficacy of spinal manipulative therapy for chronic low back pain suggested that 12 sessions of spinal manipulation in 6 weeks yielded cost-effective, modest improvements in pain and disability outcomes.^{43,44} The majority (88%) of the patients in the current study were treated in 11 or fewer chiropractic visits. More details on location of the primary spinal complaint by number of chiropractic visits and symptom duration and the inclusion of

Table 4 Location of Complaints

Complaints	Primary	Secondary	Tertiary	Overall
Lumbar	176 (51%)	37 (11%)	4 (1%)	217 (45%)
Thoracic	44 (13%)	18 (5%)	3 (<1%)	65 (14%)
Cervical	78 (23%)	36 (10%)	6 (2%)	120 (25%)
Upper extremity	12 (3%)	8 (2%)	2 (<1%)	22 (5%)
Lower extremity	12 (3%)	3 (<1%)	3 (<1%)	18 (4%)
Headaches	18 (5%)	12 (3%)	3 (<1%)	33 (7%)
None	2 (<1%)	229 (67%)	322 (94%)	2 (<1%)
Miscellaneous	1 (<1%)	0 (NA)	0 (NA)	1 (<1%)
Total	343 (100%)	114 (100%)	21 (100%)	478 (100%)

Values are expressed as n (%).

patient outcomes would be necessary to assess the overall quality of this clinical training opportunity. As chronicity is a determinant of costs for both medical and chiropractic care of low back pain,⁴⁰ training chiropractic students in agreement with evidence-based models of cost-effective treatment interventions for chronic low back pain would provide them with appropriate clinical training.

Future studies may want to further examine low back pain complaints of young adults as a function of symptom duration, chronic, subacute, or acute, and the number of chiropractic visits and include valid and reliable pain and disability outcome measures for low back complaints. More specific clinical information on this patient population will allow us to develop rigorous study designs to address cost-effectiveness and treatment effectiveness of chiropractic care for low back pain complaints in otherwise young, healthy adults 18 to 30 years of age.

Conclusion

The demographics, presenting complaints, and health history of new patients being treated at a free chiropractic clinic within a university health center were single adults 18 to 30 years of age with chronic lumbar spine complaints and few comorbidities in their case histories.

Funding Sources and Conflicts Of Interest

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

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