The authors used the National Ambulatory Medical Care Survey: 1999 Summary to compare the practice patterns of osteopathic and allopathic physicians in the management of musculoskeletal disorders in family practice settings. Patient and physician characteristics, diagnostic test ordering patterns, treatments, and amount of time spent with patients during visits were compared.

Patients who visited osteopathic physicians were more likely to be middle-aged and referred, with injury-related visits that were self-paid. Osteopathic physicians spent more time with patients, ordered a greater number of non-traditional diagnostic tests, and provided more manual and complementary modes of therapy. In contrast, although most of the patients seen by both osteopathic and allopathic physicians were white, allopathic physicians had a greater percentage of patients who were of an ethnic minority or under Medicaid or Medicare. Allopathic physicians ordered a greater number of traditional diagnostic tests and prescribed more medications.

Based on the nationally representative data, osteopathic physicians used physiotherapy (including osteopathic manipulative treatment and physical modes of therapy) and complementary treatments to a greater degree in their physician-patient contacts. In contrast, allopathic physicians spent more resources on diagnosis versus treatment (eg, physiotherapy) and seemed to focus on the search for a nonstructural medical cause.

In the United States, musculoskeletal complaints account for between approximately 15% and 23% of visits to family practice physicians. Having a prevalence of more than 14% among adult men and women, it is the most frequently self-reported, long-term illness, according to the General Household Survey, 1995. Low back pain alone, excluding neck and extremity joint pain, is responsible for more than $20 billion in health care costs annually in the United States. Musculoskeletal disorder, therefore, is clearly recognized as a widespread problem that many physicians encounter on a regular basis. However, treatment of patients with musculoskeletal complaints is often equivocal and nondefinitive, prompting the medical profession to seek more effective and viable remedies.

Arguably, there exist two general approaches used by physicians to diagnose and treat patients with musculoskeletal disease: osteopathic and allopathic. Many guidelines have been proposed through the years that follow the allopathic model. These guidelines are in agreement with the osteopathic approach insofar as recommending taking a thorough history and doing a physical examination as an important first step, thereby ruling out potentially life-threatening problems (eg, cancer, infection, nerve damage).

Thereafter the two approaches diverge. Using low back pain as an example, the allopathic approach asserts that an anatomic cause for the pain is often difficult to define with specificity, as only a small percentage of patients with low back pain have an identifiable underlying cause. Subsequently, treatment diverts to a general algorithm that calls for bed rest and use of an analgesic, followed by more intensive therapy should the pain continue. The diagnosis, then, is commonly recorded as “low back pain, not otherwise specified.”

In contrast, the osteopathic approach asserts that with sufficient diagnostic skills, osteopathic physicians are able to identify the exact anatomic region that is responsible for the pain. This enables a more specific diagnosis using the principle of somatic dysfunction (eg, L3 F R S), which is used to document in the osteopathic SOAP (subjective, objective, assessment, plan) note format. Briefly, L3 F R S is a notation used to report that the patient’s third lumbar vertebra is flexed, rotated right, and sidebent right. Having a specific somatic dysfunction analysis in hand, an osteopathic physician may then provide osteopathic manipulative treatment (OMT) to alleviate the source of the problem, restoring the vertebra to a free and unrestricted range of motion.

Although historically, the osteopathic and allopathic medical professions have different tradition and philosophy...
in their approaches to healing, there are many parallel—and some identical—training methods between the schools. Having similar medical education and training, a key question is whether the approaches differ nominally or whether each school maintains distinctive characteristics according to its traditions and philosophy. Few studies have examined the patterns of clinical practice between the schools; therefore, the authors have attempted to fill that gap. It should be noted, however, that this report is not intended to judge whether osteopathic or allopathic physicians have a superior clinical approach. Rather, the impetus behind this study is to ascertain whether there are genuine differences between osteopathic and allopathic physicians in the management of patients with musculoskeletal disorders.

**Methods**

**Source of Data**
The data used in the current study were taken from the National Ambulatory Medical Care Survey (NAMCS): 1999 Summary. The NAMCS is a national probability assessment of visits to office-based physicians in the United States, conducted by the Division of Health Care Statistics of the National Center for Health Statistics, Centers for Disease Control and Prevention. The NAMCS was designed to meet the need for objective, reliable information about the use of ambulatory medical care services in the United States.

The basic sampling unit for the NAMCS is the physician-patient encounter. Only patient visits to the offices of non–federally employed physicians, with visits classified by the American Osteopathic Association and the American Medical Association as office-based, patient care, were included in the 1999 NAMCS. Physicians in the specialties of anesthesiology, pathology, and radiology were excluded. Patient visits not included in the 1999 NAMCS were visits conducted by telephone, visits outside of the physician’s office (eg, house calls), and visits in hospital settings (unless the physician had a private office in a hospital that met the NAMCS definition of office). Also excluded were visits that occurred in institutional settings by patients for whom the institution had ongoing responsibility (ie, nursing homes) and visits to physicians’...
Treatments—Treatments provided during patient visits were divided into two categories. The first category includes therapy and procedure provided during the visit (i.e., physiotherapy, complementary modes of therapy, surgical procedures). Within NAMCS, physiotherapy is broadly defined as any form of physical therapy that includes heat, light, sound, physical pressure, or movement, as well as manipulation (including OMT).

The second category includes the total number of medications prescribed during the patient visit, which includes their class of drugs.

Time Spent With Patients—Time spent with patients includes the average number of minutes physicians spent with their patients during visits.

Patient’s Characteristics—Visiting patient’s characteristics include age, sex, race, new patient status, referral status, authorization requirement status, injury visit status, and source of payment.

Physician’s Characteristics—Physician’s characteristics include solo practice status, ownership of the clinic, geographic region of the clinic, the laboratory testing ability of the clinic, and patient’s primary care physician status.

Measurement of Variables

Visits for Musculoskeletal Diseases—Researchers identified patient visits to general and family practice physicians for musculoskeletal diseases based on the primary reason for visit classification (Reason for Visit [RVC] codes: 1900–1999 and 2900–2949). The RVC coding system, developed by NAMCS staff, is used to classify the patient’s principal complaints, symptoms, or other reasons for visits, as stated by the patient.

Diagnostic Tests—Diagnostic tests ordered by physicians during the patient visit include urinalysis, hematocrit/Hb, other blood tests, radiography, ultrasound, computed tomography scan/magnetic resonance imaging, all other diagnostic tests, and total number of tests.

In 1999, the NAMCS used a multistage probability design to produce a national sample of office-based physicians. Researchers received 20,760 patient record forms from the 1087 physicians who participated in the NAMCS. To obtain national estimates, each record was assigned an inflation factor called the “patient visit weight.” By aggregating patient visit weights on the 20,760 sample records for 1999, the user obtains the estimated total of 756,733,854 office visits made in the United States in that year. Articles that describe the method and the instrument used to interpret data in the survey have been described elsewhere.11,12
istics and physicians’ characteristics. Two tests—t-tests and chi-square tests—were conducted to measure the statistical significance for continuous variables and categoric variables, respectively. We used the term patient visit weight in every statistical procedure to reflect the national estimates. All the analyses were performed on personal computer with Statistical Analysis Software (SAS) version 8.0 (SAS Institute, Cary, NC).

Results

Visiting Patient Characteristics

As shown in Table 1, of 20,400,000 patient visits for musculoskeletal problems in 1999, approximately 23% were to osteopathic physicians, and 77% were to allopathic physicians. The mean age of patients of osteopathic physicians was 48.8 years versus 49.5 years for patients of allopathic physicians. Osteopathic physicians’ patients were more likely to be between 45 and 64 years old (43.8% vs 32.1%), while allopathic physicians’ patients were more likely to be younger or older.

Although most of the patients seen by both osteopathic and allopathic physicians were white, patients of allopathic physicians were more likely to be nonwhite (11.6% vs 6.3%), and patients of osteopathic physicians were more likely to be African American, or of another nonwhite ethnicity, compared with osteopathic physicians. In the survey, 55.4% of osteopathic physicians’ patients were female; similarly 55.9% of allopathic physicians’ patients were female. Visits by osteopathic physicians’ patients were more likely to be injury-related (39.8% vs 30.9%), new (10.2% vs 8.9%), authorization required (5.8% vs 1.9%), and referred (5% vs 1.9%), compared with visits to allopathic physicians.

Sources of payment for visits to osteopathic physicians were more likely to be private insurance (52.7% vs 49.4%), self-pay (11.6% vs 6.3%), or worker’s compensation (10.2% vs 4%). In contrast, sources of payment for visits to allopathic physicians included a greater number of payments by Medicare and Medicaid.

Physician Characteristics

As presented in Table 2, more osteopathic physicians were in solo practice than allopathic physicians (47.9% vs 30.3%), and osteopathic physicians were more likely to practice in the midwest region of the United States (51.2% vs 25.9%), whereas allopathic physicians were more likely to practice in the southern region (42.8% vs 20.7%).

In contrast, allopathic physicians were more likely to be patients’ primary care physicians (88.6% vs 69.3%), and their practices were more likely to be equipped with laboratory facilities (83.3% vs 67.4%), compared with osteopathic physicians. In addition, allopathic physicians were more likely to work at clinics owned by hospitals (16.1% vs 5%) or by a health maintenance organization (3% vs 6%), whereas osteopathic physicians were more likely to work as groups (75.5% vs 73%) or alone (47.9% vs 30.3%, respectively).

Diagnostic Tests Ordered During the Visit

During the patient visit (Table 3), allopathic physicians were more likely to order either no diagnostic tests (18.9% vs 8.1%) or two and more diagnostic tests (34.4% vs 31%). Osteopathic physicians were more likely to order one diagnostic test (60.9%
In terms of specific test, allopathic physicians were more likely to order a urinalysis (7.4% vs 2.8%), hematocrit/Hb or hemoglobin (5.2% vs 2.3%), and other blood tests (13.6% vs 6.4%). For imaging studies, osteopathic physicians were more likely to order ultrasound (4.9% vs 1%), whereas allopathic physicians were more likely to order radiography studies (17.6% vs 13.6%). For other unspecified tests, osteopathic physicians (15.7%) ordered at a higher rate than allopathic physicians (6.1%). Unfortunately, detailed information that explained exactly which body parts were imaged was not available in the database.

**Treatment**

Table 4 indicates the treatment provided by physicians to patients during visits for musculoskeletal problems. The treatments were divided into two major groups: therapy/procedure and medications. Osteopathic physicians were more likely than allopathic physicians to provide physiotherapy (23.4% vs 13.2%) and complementary therapy (3.4% vs 0%). There were no differences between osteopathic and allopathic physicians in performing surgical procedures as treatment.

Osteopathic physicians were less likely to use medication as a form of treatment, prescribing no medications in 30.8% of patient visits, one medication in 28% of the visits, and two or more medications in 42.2% of the visits. Comparatively, allopathic physicians prescribed no medications in 19.3% of the visits, one in 33.5% of the visits, and two or more in 47.2% of visits. In terms of common pain medications prescribed, allopathic physicians were more likely to prescribe narcotics (14.4% vs 12.1%), nonsteroidal anti-inflammatory drugs (11.8% vs 6.5%), and other non-narcotic analgesics (37.4% vs 28.4%) than osteopathic physicians.

**Time Spent With Patients**

During all patient visits for musculoskeletal disorders, shown in Table 5, osteopathic physicians spent more time with patients (19.1 min vs 15.1 min). Specifically, osteopathic physicians spent more time (22.7 min vs 14.6 min) in physiotherapy, which includes OMT and other physical modes of therapy and in therapeutic services (20.1 min vs 15.1 min), acute visits (19.2 min vs 14.9 min), screening services (18.9 min vs 15.1 min), injections (18.4 min vs 15 min), and injury-related visits (17.9 min vs 15.4 min). Differences in minutes spent in preventive services were not statistically significant.

**Comments**

The authors’ analysis of the NAMCS data demonstrate differences in the pattern of clinical practice between osteopathic and allopathic physicians in the management of patients with musculoskeletal disorders. These differences may be attributed to the dissimilarities in tradition, philosophy, and health care delivery between the schools, despite many shared principles related to health and diseases.

In the tradition of osteopathic medicine, emphasis is placed on holistic patient care and the theory that the body is able to heal itself. This tradition recognizes the interdependent relationship between structure and function within the human body and the use of OMT in correcting restrictions in the body’s function. These tenets are not taught as mere
abstracts in osteopathic medical schools; their use is strongly encouraged during clinical practice.

Of the approximately 20 million visits by patients with musculoskeletal complaints reported in 1999, 23% were to osteopathic physicians. This finding is not surprising because the osteopathic profession is still relatively young and, therefore, has fewer physicians than the allopathic profession.

Patients who did choose to visit osteopathic physicians tended to be white and middle-aged (between 45 and 65 years) and more likely to have been referred, have injury-related problems, and using worker’s compensation as source of payment. These data suggest that osteopathic physicians have retained their reputation as musculoskeletal specialists. Further support that recognizes the valuable services that the osteopathic profession offers may be found in the data that shows patients are willing to self-pay to gain access to osteopathic care.

Data for the current study indicate that the highest concentration of osteopathic physicians who responded to the survey practice in the midwest region of the United States. Given that the first osteopathic medical school was, and continues to be located in Kirksville, Mo, and that Missouri (until 1992) was the only state that housed more than one osteopathic medical school, it is reasonable to find more osteopathic physicians practicing in the Midwest. Osteopathic physicians were also more likely to establish solo practices and less likely to establish hospital-based practices. This may be a result of the lack of osteopathic medical hospitals in the United States.

The clinical practice of osteopathic physicians is evidently influenced by their holistic approach to healing, as data indicate greater time spent with patients during visitation and the greater likelihood that osteopathic physicians will order physiotherapy or complementary modes of therapy. Further evidence that supports osteopathic physicians’ commitment to holistic health and the theory of self-healing may be ascertained from their conservative approach toward prescribing pharmacologic agents and ordering diagnostic tests. These observations are in accord with the presupposition that patients with musculoskeletal disorders who receive OMT may require fewer pharmacologic agents, milder forms of analgesics, and less invasive procedures.13

The tradition and philosophy of allopathic medicine are notably dissimilar to those of osteopathic medicine. The allopathic approach to disease was historically symptomatic amelioration and, today, still tends to dismiss structural function as a causality.

Being the older profession and, therefore, having greater numbers, allopathic physicians, according to NAMCS, attended to most (nearly 77%) of the total musculoskeletal-related patient visits reported for 1999. This long history has benefited the allopathic medical profession in gaining widespread acceptance and acclaim. This is confirmed by a patient database that demonstrates a strong following in all age categories. Patients using Medicare or Medicaid as their source of payment were more likely to choose allopathic physicians. This trend may be attributed to a higher probability in the Medicare and Medicaid patient population to select hospital-based physicians, as these data demonstrate. Allopathic physicians were more likely to be affiliated with hospitals; therefore, the greater likelihood of hospital affiliation may be explained by the abundance of allopathic hospitals across the United States that provide an environment for allopathic physicians to establish hospital-based practices.

Finally, these data indicate that allopathic physicians were
more vigorous in prescribing medication and ordering multiple diagnostic and imaging tests. Similarly, clinics of allopathic physicians were more likely to have laboratories for testing, screening, and preventive services.

A precautionary note may be appropriate here. Although the national database (NAMCS) is considered a reliable source of information, some of its limitations should be highlighted. For instance, the database does not contain all the potentially significant variables that may be critical in our analysis. Information on the specific types of physiotherapy, complementary modes of therapy, and all other diagnostic tests is not available. Also, more precise descriptions of the modes of osteopathic therapy used are needed. These factors are important in understanding more thoroughly the different characteristics that each of the schools brings to the practice of clinical medicine in the treatment of patients with musculoskeletal disorders.

**Conclusion**

The authors' analysis detected differences between the osteopathic and the allopathic approaches used in the treatment of patients with musculoskeletal disorders. Each approach tended to follow its own set of principles in patient care and disease management. However, further studies are needed to understand the fundamental distinctions between the schools, perhaps through a more detailed survey mechanism.

Nearly one and a half centuries ago, Andrew Taylor Still, DO, MD, formulated and articulated the founding principles of osteopathic medicine. Today, those principles and the philosophy of osteopathic medicine are not taught as mere abstracts, but are appreciably manifested in the practice of clinical medicine.

In recent years, the growth of the osteopathic medical profession is evidenced by the increase in number of osteopathic medical schools nationwide and the successes of osteopathic physicians in both the public and private sectors. As osteopathic medicine continues to thrive and move forward, its unique and significant contributions to the medical arts are anticipated to be greater in number and prominence.

**References**


