A Comparison of Physician and Nonphysician Acupuncture Treatment For Chronic Low Back Pain

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Background: Although up to a third of the 10,000 acupuncturists in the United States are medical doctors, little is known about the acupuncture techniques they use or how their practices compare with those of nonphysician licensed acupuncturists. This is the first study providing descriptive data on physician acupuncture and comparison to nonphysician acupuncture.

Purpose: This study describes how a random sample of physician acupuncturists in the United States diagnose and treat chronic low back pain and contrasts their practices with those of nonphysician licensed acupuncturists.

Methods: A total of 464 questionnaires were mailed to physician acupuncturists randomly sampled from 3 sources: web-based Yellow Pages, American Academy of Medical Acupuncturists (AAMA) membership, and Pain Clinics associated with American College of Graduate Medical Education-approved fellowship programs. Responses (n = 137, 30%) were analyzed using descriptive statistics. The results of this survey were compared with data published from a similar survey of nonphysician licensed acupuncturists in Washington State.

Results: Physicians who perform acupuncture use a mixture of styles and emphasize neuroanatomic approaches to needle placement. Most physicians received training in French Energetic acupuncture. In contrast, most nonphysician licensed acupuncturists use a traditional Chinese medicine approach to needle placement. Despite this apparent difference in their predominant styles of acupuncture, there was a high correlation between physician and nonphysician licensed acupuncturist acupoint selection to treat low back pain. In addition to acupuncture needling, physicians use other medical treatments, whereas nonphysician licensed acupuncturists' employ a variety of traditional Chinese medicine adjuncts to needling.

Conclusion: This study provides new information about the nature of physician acupuncture practice in the United States and how it compares to acupuncture provided by nonphysician licensed acupuncturists. Further research is necessary to determine if the different types of acupuncture provided by physicians and nonphysician acupuncturists affect treatment outcomes and costs for patients with chronic low back pain.

Key Words: acupuncture, physician, nonphysician licensed, low back pain, needle

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BACKGROUND

United States physicians have trained in acupuncture in the United States and overseas since acupuncture was introduced into the American medical care system in the early 1800s.[1] However, it was only in 1996 that the Food and Drug Administration (FDA) relabeled acupuncture needles as medical equipment and no longer as experimental devices. All but 4 states permit medical doctors to practice acupuncture under his or her medical license. By 2001, 42 states had enacted legislation regulating the practice of acupuncture by nonphysicians.[2] In 1997, an estimated 20% to 30% of acupuncturists practicing in the country were medical doctors.[3]

In the United States acupuncturists employ many different acupuncture paradigms and styles, including those based on traditional oriental theories as well as those based on a neuroanatomic perspective.[4] Although traditional Chinese medical (TCM) acupuncture appears to be the most popular form of acupuncture among licensed (ie, usually nonphysician) acupuncturists,[5] little has been reported about the acupuncture styles used by physician acupuncturists in the United States. This study characterizes the practices of physician acupuncturists in the United States and compares their practices with those of nonphysician licensed acupuncturists to provide a basis for designing future trials evaluating acupuncture as it is used in actual practice. Because chronic low back pain is widespread, costly, and the condition most frequently treated by both licensed and medical acupuncturists,[1,6] this study focuses on how physician acupuncturists diagnose and treat patients with chronic low back pain.

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MATERIALS AND METHODS

Establishing a Sampling Frame

Almost all states permit medical doctors to practice acupuncture under their medical licenses. As a result, there is no directory listing of all U.S. physicians who practice acupuncture. Therefore, 3 sampling approaches were taken in an attempt to capture a reasonably representative sample of physicians who incorporate the use of acupuncture into their medical practice to treat low chronic low back pain. The sources used to establish our sampling frame included an online version of the Yellow Pages (www.bigyellow.com), the directory of the American Association of Medical Acupuncturists (AAMA), and the directory of the American College of Graduate Medical Education (ACGME)-accredited pain clinics. We found approximately 5% overlap of physicians in each group. The details of constructing each sampling frame are described below.

Yellow Pages

Big Yellow lists acupuncturists in every state under "Physicians and Surgeon Acupuncture,""Physician Acupuncture," and "Acupuncture and Acupressure." However, because it was difficult to determine which of the acupuncturists listed in the last category were medical doctors (MD) or doctors of osteopathy (DO), as opposed to doctors of chiropractic or naturopathy, we telephoned a sample of these acupuncturists to inquire about their training. We learned that acupuncturists listed without an "MD" or "DO" after their names rarely held these degrees and were therefore excluded. A total of 753 physician acupuncturists from 42 states and the District of Columbia were identified and comprised the first sampling frame. Eight states did not list any acupuncturists.

American Association of Medical Acupuncturists

The second sampling frame was selected from the 1999 membership directory of the AAMA. Of 1821 members listed, 539 physicians (MD and DO) were designated "full" active members, a status achieved by completing at least 220 hours of formal medical acupuncture training and at least 2 years of acupuncture practice. These 539 physicians formed the second sampling frame. The 1282 AAMA members who were "Associate," "Affiliate," or "Student" members were excluded.

Pain Clinics

A 2-stage process was used to assemble the third sampling frame. First, all 85 pain clinics in the 1999 directory of ACGME-accredited pain management training centers were identified. The directors of these pain clinics were then mailed questionnaires asking them to identify physicians in their clinics who used acupuncture needles as part of their practice. The physician investigator (D.K.) called all clinic directors who did not respond to the mailed inquiry. Eighty-one pain clinics were successfully contacted, and they identified a total of 64 pain management physicians in their clinics who used acupuncture. These 64 physicians comprised the third sampling frame.

Questionnaire Development

Sherman et al surveyed a randomly selected group of 56 licensed acupuncturists in Washington State about the styles of acupuncture they used for treating chronic low back pain, diagnoses made, and key features of treatment of this condition.[5] We modeled our survey instrument for physicians on Sherman et al's survey, with modifications to accommodate the scope of physician practice and used a broad definition of acupuncture to promote inclusion of all styles. In the cover letter, acupuncture was defined as the insertion of solid, thin-gauged (acupuncture) needles into a patient's body. Data were collected on styles of acupuncture practiced, diagnoses made, key features of treatment (eg, number of needles, number of visits, use of specific acupoints, electrical stimulation of needles, use of additional treatment modalities), and on training and practice characteristics. To compare the use of specific acupoints for treating low back pain by physician and non-physician acupuncturists, we used the list of acupoints most relevant for chronic low back pain identified from acupuncture texts, clinical records and a survey of acupuncturists by Sherman et al.[5] Prior to the survey, physician advisors knowledgeable about a variety of acupuncture techniques provided feedback on the clarity and appropriateness of questions. A subsequent pilot testing of the survey was carried out to assure against leading questions, easily misunderstood questions, or complicated methods of recording information that would possibly lead to recording errors. Modest survey adjustments were made to accommodate physicians with different types of acupuncture training.

Conducting the Survey

Physician lists from each sampling frame were randomly assigned a number from a computerized random number generator. Physicians assigned to numbers 1 to 50 from each list received the first mailing. Additional surveys were sent in accordance to sequential randomly assigned numbers as needed to meet the targeted accrual of 50 persons per list. Cover letters cosigned by the investigators, the president of the AAMA, the president of the Medical Acupuncture Research Foundation, the director of the Medical Acupuncture Research Foundation Board, and the president of the Institute of the Study of Pain were sent between March and August 2000. The letter noted that respondents would be paid $50 for returning completed questionnaires in the postage-paid envelopes provided. Our goal was to collect 50 completed surveys from each physician list. In an attempt to improve response rates, surveys were remailed to nonrespondents after 4 weeks. A total of 464 surveys were mailed: 150 to AAMA members; 64 to pain clinic physicians; and 250 to physicians listed in the Yellow Pages. Only 2 physicians ($<0.5\%$) were randomly selected from more than 1 sampling frame. Their responses were included in both samples from which they were selected.

Statistical Analysis

The data from the completed questionnaires were analyzed using STATA 6.0.[7] Results are presented as descriptive statistics (means, medians, and percentages). Where comparable data existed, physician data were compared with

corresponding data from a survey of licensed (nonphysician) acupuncturists.[5]

RESULTS

Response Rate

Despite offering $50 compensation and having respected leaders sign the cover letter, only 137 physicians (30%) responded to our survey: 53 (21%) physicians sampled from the Yellow Pages, 55 (37%) physicians from the AAMA, and 29 (45%) physicians from pain clinics. In comparison, Sherman et al achieved a 77% response rate from surveyed licensed acupuncturists.[5]

Physician Characteristics

Physician acupuncturist respondents from the 3 sources (Yellow Pages, AAMA, pain clinics) did not differ significantly in their gender, specialty board certification, training at a TCM school, or total patient care hours per week (Table 1).[8] In our sample, the typical physician acupuncturist was male, middle-aged, and board certified. He had received 300 to 400 hours of acupuncture training, spent about 40 hours each week on patient care, saw about 60 patients per week, and used acupuncture on more than one third of his patients. Few physician acupuncturists had received training at a TCM school. In fact, more than half of the physicians (66%) received training from the "Medical Acupuncture for Physicians" course offered through the office of Continuing Medical Education, UCLA School of Medicine and chaired by Dr. Joseph Helms (thus, also known as the "Helms Acupuncture Course")[9] (Table 1).

In our sample, only 20% of physician acupuncturists were female compared with 57% of nonphysician licensed acupuncturists.[6] Physician acupuncturists had practiced for a median of 7 years, whereas nonphysician licensed acupuncturists practiced for a median of 4 years.[6] Both physician acupuncturists and nonphysician licensed acupuncturists believed that the minimum number of treatments appropriate to treat low back pain was approximately 7.[5]

Diagnoses

Table 2 lists the percentages of physicians reporting the use of specific diagnoses for patients with chronic low back pain. In general, physician acupuncturists favored Western medical diagnostic labels, both specific (eg, "herniated disk," "spinal stenosis") and nonspecific (eg, myofascial pain, lumbago). Nonphysician licensed acupuncturists were more likely than physician acupuncturists to use several of the Chinese diagnoses, especially "Qi" [and/or] "Blood stagnation" and "BiSyndrome" (Table 2).

Factors Considered Important in Reaching a Diagnosis by Physicians

Factors most often reported as important in making a diagnosis for a patient with chronic low back pain included patient history (pain onset [99%], modifying factors that make the pain better or worse [100%], and medical history [97%]), physical examination (neurologic examination [96%], patient posture, spine curvature [93%], palpation [95%]), and neuroaxial imaging findings (91%). Constitutional factors, the patients' descriptions of their symptoms (intensity, quality,

TABLE 1. Characteristics of Physician Acupuncturists

	Total (n = 137)	Nonphysician Licensed Acupuncturists[5,18]
Female (%)	20	56
Age (median yrs)	50	43
Board certified in specialty (%)*	90	NA
Yrs practiced acupuncture (median)	7	7
Trained at a TCM school (%)	15	100
Trained at a Helms Acupuncture Course (%)	66	0
Hrs of acupuncture training (median)	300	NA
No. patients seen each wk (median)	60	4
Total patient care hrs each wk (median)	40	NA
Use of acupuncture on most patients (%)	37	100

*Specialties included: Family Medicine (52), Anesthesiology/Pain Management (38), Physical Medicine and Rehabilitation (25), Internal Medicine (15), Osteopathic Medicine (5), Neurology (4), Obstetric/Gynecology (3), Emergency Medicine (2), Addiction Medicine (1), General Medicine (1), Neurosurgery (1), Neuropsychiatry (1), Ophthalmology (1), Pediatrics (1), Preventive Medicine (1), Psychiatry (1).
NA, not applicable.

TABLE 2. Percentage of Acupuncturists Making Each Diagnosis at Least Sometimes for Patients With Chronic Low Back Pain Symptoms

Diagnosis	Physician Acupuncturists (%) Total (n = 137)	Nonphysician Licensed Acupuncturists* (%) (n = 50)
Herniated disk	93	NA
Sciatica	89	NA
Myofascial pain	89	NA
Lumbago or lumbar strain or sprain	88	NA
Spinal stenosis	85	NA
Neuropathic pain	76	NA
Tai yang circuit	73	NA
Nonspecific low back pain	73	NA
Kidney deficiency	69	80
Kidney qi deficiency	62	88
Kidney yin deficiency	59	72
Qi and/or blood stagnation	52	96
Kidney yang deficiency	49	72
Wind/cold/damp (Bi syndrome)	46	84
Spleen qi deficiency	45	31
Liver qi stagnation	42	58
Liver blood deficiency	31	34

*Data from Sherman et al.[5]
NA, not asked.

location), range of motion, and sensation of cold or heat were also considered important by at least 75% of physicians. Factors not typical of Western medicine, such as the pulse and tongue diagnosis, were considered important by only about half of the physicians. Nonphysician acupuncturists similarly gave emphasis to history and physical examination elements, but gave more emphasis to the patient's sensation of heat or cold (98%), and to the evaluation of the pulse (92%) and tongue (78%), when making diagnoses.

Acupuncture Style

Physician acupuncturists commonly used 5 styles of acupuncture to treat chronic low back pain: Neuroanatomic, French Energetic, Auricular, TCM, and Percutaneous Electrical Nerve Stimulation (PENS) (Table 3). Physicians reported using various styles of acupuncture to treat other conditions in addition to low back pain (data not shown). The most prevalent acupuncture style used by physicians to treat chronic low back pain was based on neuroanatomical point selection (ie, trigger point therapy), whereas the TCM style of acupuncture was the most popular among nonphysician licensed acupuncturists (Table 3). The addition of electrical stimulation to the needles after placement was used by about two-thirds of both types of acupuncturists.

Acupuncture Meridians

Both physicians and nonphysician acupuncturists tended to select points from the Bladder and Kidney meridians to treat chronic low back pain. Nonphysician acupuncturists also selected points from the Du and Gall Bladder meridians (Table 4). Neither group tended to use points on the Heart, Liver, Spleen, San Jiao (Triple Heater), or Stomach meridians to treat chronic low back pain.

TABLE 3. Styles of Acupuncture Typically Used for the Treatment of Chronic Low Back Pain by Physicians and Nonphysician Licensed Acupuncturists

Acupuncture Style	Physician Acupuncturists Total (%) (n = 137)	Nonphysician Licensed Acupuncturists* (n = 56)
Neuroanatomic (ie, trigger point)	70	43
PENS/electrostimulation	63	70
French Energetic	50	9
Auricular	44	NA
Traditional Chinese medicine	39	89
Other	11†	16‡

*Data from Sherman et al.[5]

†Other styles used by physician acupuncturists in treating low back pain include (n): Yamamoto New Scalp Acupuncture (4), Dr. Tan Total Body Balance (3), traditional Chinese acupuncture (not TCM) (2), Worsley 5 Element (9), Japanese eclectic styles (6), Japanese Meridian Therapy (5), Korean (3). The following were mentioned once: autonomous traditional acupuncture, air acupuncture, facial, mark seems surface energetics, electroauricular.

‡Other styles used by nonphysician licensed acupuncturists in treating low back pain include (n): Chinese auriculotherapy (2), American eclectic, Ashi points, scalp acupuncture, Worsley 5 Element (4), Japanese eclectic styles (25), Japanese Meridian Therapy (14), Korean (3), and Nogier auriculotherapy.

NA, not asked.

TABLE 4. Reported Frequency of Usually or Always Using Points on Specific Channels/Meridians by Physician and Nonphysician Licensed Acupuncturists Treating Chronic Low Back Pain

Channels/Meridians	Physician Acupuncturists (n = 137) (%)	Nonphysician Licensed Acupuncturists* (n = 50) (%)
Bladder	83	90
Kidney	64	74
Governing vessel (Du)	47	66
Gall bladder	29	60
Small intestine	20	30
Large intestine	15	32
Heart	14	NA
Liver	13	20
Spleen	12	12
San Jiao (triple heater)	11	22
Stomach	10	4

*Data from Sherman et al.[5]

NA, not asked.

Point Selection

Physician and nonphysician acupuncturists generally used the same acupuncture points previously identified by Sherman et al as potentially useful in treating chronic low back pain symptoms[5] (Table 5). Ashi points, those points empirically selected that are tender to palpation but do not have a consistent anatomic location, were also "usually" or "always" used by most physician and nonphysician licensed acupuncturists. The Huatuo Jiaji points, which are chosen by both physician and nonphysician licensed acupuncturists alike, are a series of points on either side of the ligament attaching the transverse processes of the vertebral column between T1 and L5. In addition, 4 of the acupoints most likely to be used to treat low back pain are located on the lower leg.

Factors Important to Point Selection

Palpation to assess the local painful area was the most frequently reported factor deemed important for determining the needle placement by both physician and nonphysician licensed acupuncturists. Other factors most physicians considered important in point selection were previous treatment results, their own experience using specific points, results of the neurologic examination, Western medical diagnoses, and channel-based diagnoses. Less than one-fourth of physicians indicated that the 8 Principles or Zang Fu diagnoses played a significant role in point selection. Although nonphysician licensed acupuncturists were about as likely as physicians to consider their own experience using specific points as important, they were more likely to consider channel diagnosis, the position of the patient on treatment table, the 8 Principles diagnosis, and the Zang Fu diagnosis important to the selection of acupoints.

Medications

Eighty-five percent of physician acupuncturists use common analgesic medications such as nonsteroidal

TABLE 5. Percentage of Acupuncturists Who Reported They Would Usually or Always Use Specific Acupoints Previously Identified as Potentially Useful for Treating Chronic Low Back Pain

Acupoints	Physician Acupuncturists (n = 137) (%)	Nonphysician Licensed Acupuncturists* (n = 50) (%)
Ashi points	73	82
Bladder 23 (Shenshu)	74	74
Bladder 25 (Dachangshu)	60	48
Bladder 27 (Xianochangshu)	44	32
Bladder 32 (Ciliao)	30	46
Bladder 40 (Weizhong)	45	58
Bladder 60 (Kuniun)	63	60
Gall bladder 30 (Hunatio)	28	40
Gall bladder 34 (Yanglingquan)	39	42
Governing vessel 4 (Mingmen)	40	26
Huatuo Jiaji	32	54
Kidney 3 (Taixi)	56	40

*Data from Sherman et al.[5]

TABLE 6. Selected Modalities Used at Least Sometimes for Patients With Chronic Low Back Pain

Modality	Physician Acupuncturists (n = 137) (%)	Nonphysician Licensed Acupuncturists* (n = 50) (%)
Any type of acupuncture needling	93	100†
Trigger point injections	80	NA
PENS/electrostimulation	70	70
TENS	63	NA
LES injections	51	NA
Massage	48	86
Moxibustion	44	98
Heat lamp/TDP	35	66
Oriental herbs	31	88
Cupping	25	88
Warming needle	19	64
Liniments/plasters	16	80

*Licensed Acupuncturists, data from Sherman et al.[5]
†Not specifically asked but assumed to be close to 100%.
TENS, transcutaneous electrical nerve stimulation; LES, lumbar epidural steroids; TDP, Te-Ding Dian-ci-bo Pu.

anti-inflammatory drugs (NSAIDs) and acetaminophen for patients with chronic low back pain at least sometimes. Between 70% and 75% of physicians also sometimes prescribed opioid analgesics, muscle relaxants, antidepressants, and antiepileptic drugs. Supplements and nutriceuticals were sometimes used by about half the physicians.

Other Treatment Modalities

Physician and nonphysician licensed acupuncturists reported similar rates of PENS/electrostimulation use, although physicians tended to describe it as "PENS" and nonphysician licensed acupuncturists referred to it as "electrostimulation" (Table 6). Physician acupuncturists generally recommended exercise (98%) and referrals to other services such as physical therapy (93%), massage (84%), and psychologic counseling/behavioral management (77%). Interestingly, the rate of massage therapy use was very similar to nonphysician acupuncturists' use (86%), although nonphysicians were more likely to perform the service rather than to refer to another provider. Nonphysician licensed acupuncturists were also more likely to use moxibustion, heat, herbs, warming needles, cupping, and liniments as part to their service (Table 6).

DISCUSSION

This represents the first study providing descriptive data and making group comparisons regarding the use of acupuncture for treating low back pain symptoms. Because there is no national listing of physician acupuncturists, we sampled acupuncturists from 3 relatively distinct sources. The results for these 3 groups of physician acupuncturists were generally similar. More than half of the physicians surveyed received at least some of their acupuncture training from the "Helm's Acupuncture Course" that has trained an estimated 4000 physicians since 1983.[9] The Helm's course, which includes lectures, home study, a series of videotapes, and supervised clinical training, consists of about 300 hours of formal instruction in medical acupuncture. Despite the Helms course's emphasis on French Energetic acupuncture, the physician acupuncturists in our study employed a mix of styles, emphasizing neuroanatomic approaches to selecting needle placement. Physician identification of acupoints based on channel and meridian labels in conjunction with using a neuroanatomic approach seems to reflect some degree of integration of neuroanatomic and meridian systems.

Sherman et al reported the results of surveying a random sample of nonphysician licensed acupuncturists in Washington State identified by the Washington State Department of Licensing.[5] Fifty-six survey respondents (77% response rate) practiced a median of 7 years and the majority (82%) received their training exclusively in the United States.[5] Comparisons of the results of the survey with those from a similar survey of nonphysician licensed acupuncturists[5] indicate there is a distinct overlap between the acupuncture practices of physician and nonphysician licensed acupuncturists. There was a striking similarity of acupoints selected by both physician and non-physician licensed acupuncturists, even though each group emphasized a different style of needling. This seems to indicate that different empirical methods of acupuncture tend to converge on common point locations despite differences in the underlying technical or philosophical foundations characterizing each approach.

Despite this core of general agreement between physician and nonphysician licensed acupuncturists, however, there are several noteworthy differences between the two that may have important implications for patients, researchers, and health policy makers. In particular, unlike nonphysician licensed acupuncturists, physicians use a host of Western medical diagnostic technologies such as imaging and electromyographic

studies and use prescription medications and invasive procedures such as spinal injections and nerve blocks. Physicians also frequently incorporate the use of physical therapy and psychologic counseling into the treatment of chronic low back pain via referral. By contrast, nonphysician licensed acupuncturists employ traditional Chinese diagnostic techniques (eg, tongue and pulse diagnosis) and employ adjuncts to needling (eg, cupping, moxibustion). Thus, patients seeking acupuncture treatment are likely to receive markedly different tests and treatments depending on whether they visit a physician or a nonphysician licensed acupuncturist even though they may be needled with the same points. Comparing our national sample of physician acupuncturists with nonphysician licensed acupuncturists in a single state represents a potential limitation of this study. However, this limitation is mitigated somewhat by the results of a recent study that found that non-physician licensed acupuncturists in Massachusetts and Washington have similar practices.[6]

Another important limitation of this study is the rate of response by the physicians surveyed. Despite our best efforts to optimize response by offering remuneration and a second mailing to nonrespondents, the overall response rate to this survey was low. Therefore, the ability to generalize the results of this study to physician acupuncturists nationwide is limited. Selection bias may have also adversely affected the internal validity of the results. No response to our survey may have occurred for one of several reasons: the physician was unavailable, very busy, no longer at the address listed, not interested in the subject, fearful of any ramifications of their response (ie, stigmatized as an acupuncturist), or some other reason. We would expect that similar factors would be operating across all 3 groups of physicians and, therefore, nonresponse bias would be similar across 3 groups. In this exploratory study, where our major conclusions are based on rather large similarities or differences, it is not clear that response bias would affect the main findings of the study such as point selection. Other published physician surveys reporting similarly low response rates seem to suggest physicians are a difficult target population to sample. This limitation notwithstanding, no published data exist on how physicians incorporate acupuncture into their medical practice. The results of this study provide a basis for future studies that may find ways of overcoming the limitations of this one.

The relative effectiveness of acupuncture delivered by physician and nonphysician licensed acupuncturists has not been studied. Despite the similarities of acupoint selection by 2 types of acupuncture providers, studies comparing the effectiveness of physician and nonphysician acupuncturists will need to clarify broader aspects of practice such as the clinical context of acupuncture delivery (eg, office setting, provider credentials, diagnostic maneuvers, and adjunct therapies). Patients accessing acupuncture services from physicians and nonphysician licensed acupuncturists may differ substantially in terms of their demographics, general health and comorbid conditions, and expectations for benefit from acupuncture. These factors may have an important influence on clinical outcomes[10] and deserve particular attention in the design and interpretation of future studies.

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