SPINE Volume 28, Number 3, pp 292–298

Patterns and Perceptions of Care for Treatment of Back and Neck Pain

Results of a National Survey

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Study Design. We conducted a nationally representative random household telephone survey to assess therapies used to treat back or neck pain.

Objectives. The main outcome was complementary therapies used in the last year to treat back or neck pain.

Summary of Background Data. Back pain and neck pain are common medical conditions that cause substantial morbidity. Despite the presumed importance of complementary therapies for these conditions, studies of care for back and neck pain have not gathered information about the use of complementary therapies.

Methods. Our nationally representative survey sampled 2055 adults. The survey gathered detailed information about medical conditions, conventional and complementary therapies used to treat those conditions, and the perceived helpfulness of those therapies.

Results. We found that of those reporting back or neck pain in the last 12 months, 37% had seen a conventional provider and 54% had used complementary therapies to treat their condition. Chiropractic, massage, and relaxation techniques were the most commonly used complementary treatments for back or neck pain (20%, 14%, and 12%, respectively, of those with back or neck pain). Chiropractic, massage, and relaxation techniques were rated as "very helpful" for back or neck pain among users (61%, 65%, and 43%, respectively), whereas conventional providers were rated as "very helpful" by 27% of users. We estimate that nearly one-third of all complementary provider visits in 1997 (203 million of 629 million) were made specifically for the treatment of back or neck pain.

Conclusions. Chiropractic, massage, relaxation techniques, and other complementary methods all play an important role in the care of patients with back or neck pain. Treatment for back and neck pain was responsible for a large proportion of all complementary provider visits made in 1997. The frequent use and perceived helpfulness of commonly used complementary methods for these conditions warrant further investigation. [Key words: back pain, neck pain, alternative medicine, perceived helpfulness, health services use] **Spine 2003:28: 292–298**

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This project was supported by National Institutes of Health grant U24 AR43441, Bethesda, MD; the John E. Fetzer Institute, Kalamazoo, MI; the American Society of Actuaries, Schaumburg, IL; the Friends of Beth Israel Deaconess Medical Center and the Kenneth J. Germeshausen Foundation, Boston, MA; and the J.E. and Z.B. Butler Foundation, New York, NY. Dr. Wolsko was supported by an Institutional National Research Service Award for Training in Alternative Medicine Research (T32 AT00051), National Institutes of Health, Bethesda, MD; Dr. Phillips was supported by a Mid-Career Investigator Award (K24 AT00589) from the National Center for Complementary and Alternative Medicine, National Institutes of Health, Bethesda, MD.

Acknowledgment date: January 7, 2002. First revision date: April 5, 2002. Second revision date: June 10, 2002. Acceptance date: June 17, 2002.

The manuscript submitted does not contain information about medical device(s)/drug(s).

Federal, foundation, and professional organization funds were received in support of this work. No benefits in any form have been or will be received from a commercial party related directly or indirectly to the subject of this manuscript.

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Back pain affects up to 75% of the adult population at some time in their lives, and 15–30% of adults experience back pain in a given year.[1,9] Back pain is the second leading symptomatic cause of physician visits in the United States.[7,12] Neck pain affects up to two-thirds of adults at some point in their lives and is the most common cause of musculoskeletal pain in some populations.[6]

Appropriately, the great impact of these pain syndromes on society has prompted much investigation into what constitutes appropriate care for affected persons. Although there is considerable uncertainty about optimal management for patients with these conditions, investigators agree that most episodes of back or neck pain are best treated with analgesics and self-care.[2,8] Despite the widespread nature of the conditions, patterns of care for treatment of back and neck pain have been incompletely studied. Most research on these conditions has been limited to the use of conventional services with the exception of visits to chiropractors.[9] Because of the widespread and increasing use of complementary therapies[10,11] and the emphasis on self-care in the treatment of back and neck pain,[3] assessment of complementary therapy use is necessary to form a complete picture of care patterns for these conditions. This information is important to medical professionals and health care organizations caring for patients with back and neck pain and to inform wise investment in research.[17] Therefore, our objective was to investigate patterns of care for the treatment of back and neck pain, using data from a national survey.

Materials and Methods

Survey Design and Response Rate. We conducted a nationally representative telephone survey between November 1997

and February 1998. We used random-digit dialing with random selection of one English-speaking household resident aged 18 or older. We weighted the data to adjust for geographic variation in response rates and for variation in household size and the probability of selection. A subset of potential subjects who initially declined participation was offered a monetary incentive to participate. Sample weights were modified to account for this procedure. Finally, we used sociodemographic variables to readjust weights to ensure similarity between the sample and U.S. population demographic distributions.

We presented the interview as a survey conducted about the health care of Americans with no mention of alternative or complementary therapies. Questions began with assessment of current health status, interactions with medical doctors, and personal experience over the last 12 months with common medical conditions. When inquiring about common medical conditions, respondents were asked a series of questions, including the following: "During the past 12 months have you had back or neck problems?" Respondents answering "yes" were then asked the following: "Were they in the neck?" "Were they in the upper back?" "Were they in the lower back?" Respondents were also given the opportunity to report up to three medical conditions that had not been mentioned on the list. Use of conventional therapies in the last 12 months was assessed for up to 5 medical conditions for each respondent. We then asked about the use of complementary therapies. Classification of a therapy as a complementary therapy was based on generally accepted principles outlined in previous work[10] and is detailed in the *Appendix*. For a random sample of up to 3 complementary therapies used by the respondent in the last 12 months, we asked in-depth questions, including for which conditions they had used this method, whether they had seen a complementary professional, and, if so, how many visits they made. Respondents were asked to rate the perceived helpfulness of complementary and conventional therapies for each of their self-reported medical conditions. We previously published additional details of the sampling methods and interview.[11] The study methods were approved by the Institutional Review Board at Beth Israel Deaconess Medical Center.

We obtained a 60% weighted overall response rate among eligible respondents. Specific respondent characteristics, additional details of the weighting procedures, and general survey results have been published previously.[11]

Analysis. We estimated the proportions of respondents who used conventional and complementary therapies for their back or neck pain in the last year and the proportion of respondents using each therapy who perceived that therapy to be "very helpful" for each of their medical conditions. Estimates for the number of visits made to a complementary provider specifically for the purpose of treating back or neck pain were calculated by dividing the number of visits made to a specific complementary provider by the total number of conditions for which that provider was used. Our weighting procedure (described above) was specifically designed to allow us to make national estimates through extrapolation from our sample. Therefore, using our weighting procedure and simple extrapolation from our sample to the U.S. population of 198 million adults in 1997, we estimated the number of visits made to different types of complementary and alternative medicine (CAM) providers in that year.

We used logistic regression to identify factors associated with using complementary therapies specifically for the treatment of back or neck pain among respondents who reported having back or neck pain in the last year. Factors evaluated for significance in bivariable analyses included sex, quintile of age, race (white *vs.* other), education level (college education or greater *vs.* other), household income ($50,000 or greater *vs.* other), region of the country (Northeast, North Central, South, West), urbanicity, employment status (unemployed *vs.* other), location of back or neck pain (low back or upper back or neck pain *vs.* pain in more than one location), self-rated health status (very good or excellent *vs.* good, fair, or poor), frequent use of conventional providers (upper quartile of visits made in last year *vs.* other), and extent of disability (self-reported limitations with daily life due to a health condition in the last year *vs.* no limitations). We used a backward elimination procedure to create the final model, restricting analysis to variables significant at $P \leq 0.2$ in our bivariable analyses, and incorporating only variables with a Wald statistic of $P \leq 0.05$ in our final model. All analyses were performed using SUDAAN (Research Triangle Institute, Research Triangle Park, NC; statistical package) with appropriate weighting and nesting variables.

■ Results

Prevalence of Back and Neck Pain and Patterns of Care

Overall, 2055 respondents completed the survey. The sociodemographic characteristics of the survey sample were similar to the population distributions published by the U.S. Bureau of the Census. Details of the survey demographics compared with U.S. Bureau of the Census data have been published previously.[11] Of those completing the survey, 644 (33% weighted) reported having back or neck pain in the last year. Of those, 38% had low back pain only, 16% had neck or upper back pain only, and 46% had pain in more than one location. A detailed breakdown of therapies used in the last 12 months to treat back or neck pain is shown in Table 1. Of those with back or neck pain, 29% had used complementary medicine alone, 25% had used both complementary medicine and a conventional provider, 12% had used only a conventional provider, and 34% had used neither to treat their condition in the last year. Compared with respondents with pain in only one location, those with pain in multiple locations had greater utilization of both conventional medicine and complementary medicine. This was consistent across the individual complementary methods.

The most commonly used complementary therapies to treat back or neck pain in the last 12 months (Table 2) were chiropractic (used by 20% of those with back or neck pain), massage (used by 14%), and relaxation techniques (used by 12%). The relative frequency of use of specific complementary methods did not differ depending on whether the pain was located in the low back, upper back or neck, or in multiple sites (results not shown).

Table 1. Therapies Used to Treat Back or Neck Pain in the Last 12 Months

	Any Back or Neck Pain (n = 644)	Low Back Pain Only (n = 242)	Upper Back or Neck Pain Only (n = 102)	Pain in >1 Site (n = 300)
Saw conventional provider*	36.6 (31.3–41.9)	31.3 (25.2–37.4)	25.4 (16.0–34.8)	46.8 (39.2–54.4)
Used any complementary therapy*	53.6 (48.7–58.5)	43.5 (38.2–48.8)	45.0 (32.8–57.2)	66.9 (59.6–74.2)
Physical methods	35.3 (30.4–40.2)	24.5 (19.0–30.0)	35.6 (23.6–47.6)	45.8 (36.8–54.8)
Taken by mouth†	5.3 (2–8.6)	3.2 (1.8–5.6)	5.6 (0–12.5)	7.1 (0–14.2)
Cognitive therapies	17.1 (12.0–22.2)	13.8 (7.9–19.7)	9.4 (1.8–17.0)	23.3 (13.9–32.7)
Other	15.8 (10.7–20.9)	9.2 (4.9–13.5)	8.4 (1.1–15.7)	25.0 (15.0–35.0)
Saw any complementary professional*	34.1 (28.6–39.6)	20.5 (15.0–26.0)	30.6 (18.6–42.6)	48.9 (39.9–57.9)

Values are % (95% confidence interval). Sample sizes presented are unweighted. Percentages and confidence intervals are based on weighted data.
* Percentages may differ from those presented previously by Eisenberg *et al*[11] because previously reported data on back or neck pain were confined to those who reported it as one of their three most bothersome conditions, whereas results reported here refer to the total sample who reported these conditions.
† Therapies taken by mouth include herbs, megavitamins, homeopathy, and naturopathy.

Table 2. Complementary Therapies Used in the Last 12 Months to Treat Back or Neck Pain

	Any Back or Neck Pain (n = 644)
Physical methods	35.3 (30.4–40.2)
Chiropractic	19.8 (15.3–24.3)
Massage	14.1 (10.8–17.4)
Yoga	1.5 (0.3–2.7)
Acupuncture	0.9 (0–1.9)
Osteopathy	0.3 (0–2.5)
Other	5.4 (3.2–7.6)
Taken by mouth	5.3 (2–8.6)
Homeopathy	2.6 (0–5.7)
Vitamins	1.8 (0.2–3.2)
Herbs	1.3 (0.3–2.3)
Naturopathy	— —
Cognitive	17.1 (12–22.2)
Relaxation techniques	11.7 (8.2–15.2)
Imagery	5.8 (1.5–10.1)
Biofeedback	0.4 (0–0.9)
Self-help	0.3 (0–0.7)
Hypnosis	— —
Other	15.8 (10.7–20.9)
Spiritual healing by others	5.3 (1.2–9.4)
Energy healing	4.3 (1.9–6.7)
Aromatherapy	2.7 (0.3–5.1)
Neural therapy	1.7 (0.5–2.9)
Special diet	1.2 (0–2.4)
Other	1.6 (0.2–3.0)

Values are % (95% confidence interval).
Sample sizes presented are unweighted. Percentages and confidence intervals are based on weighted data.

Factors Associated With Use of Complementary Medicine for Back or Neck Pain

Factors independently associated with the use of complementary medicine for the treatment of back or neck pain are presented in Table 3. Women and those reporting pain in more than one location (*i.e.*, both lower back and upper back) were more likely to use complementary medicine for back or neck pain and use peaked in the fifth decade of life. Other variables tested for the regression model, such as income, education, frequent use of conventional providers, self-rated health status, and extent of disability, were not independently associated with use of complementary medicine for back or neck pain.

Perceived Helpfulness of Complementary Therapies and Conventional Providers

The frequencies with which commonly used therapies were perceived to be "very helpful" for the treatment of back or neck pain are shown in Table 4. Overall, 48% of complementary therapies were perceived as "very helpful" for the treatment of back or neck pain. However, assessments of complementary therapies' helpfulness varied widely by method. Physical-based methods were most frequently perceived as very helpful, with these

Table 3. Factors Independently Associated With Use of Complementary Therapies for the Treatment of Back or Neck Pain in the Last 12 Months Among Those Reporting Back or Neck Pain

Characteristic	% of respondents with back or neck pain using complementary therapies	Unadjusted odds ratio (95% CI)	Adjusted odds ratio (95% CI)
All respondents	53.6	—	—
Pain in >1 location*	66.9	2.58 (1.72, 3.89)	2.35 (1.58, 3.53)
Pain in 1 location	43.9	1.0	1.0
Age*			
18–29 yrs	48.7	0.52 (0.29, 0.94)	0.53 (0.29, 0.97)
30–39 yrs	56.9	0.72 (0.4–1.31)	0.80 (0.45, 1.41)
40–49 yrs	64.7	1.0	1.0
50–64 yrs	52.1	0.59 (0.32, 1.11)	0.56 (0.30, 1.03)
65+ yrs	33.5	0.27 (0.14, 0.54)	0.24 (0.12, 0.48)
Female*	61.3	2.17 (1.47, 3.19)	2.00 (1.35, 2.96)
Male	42.2	1.0	1.0

* Factor significant at $P = 0.001$.

Table 4. Perceived Helpfulness (% Reporting "Very Helpful") of Therapies Used in the Last 12 Months for the Treatment of Back and Neck Pain

	Any Back or Neck Pain		Low Back Pain Only		Upper Back or Neck Pain Only		Pain in >1 Site	
	% (n)‡	95% CI	% (n)‡	95% CI	% (n)‡	95% CI	% (n)‡	95% CI
Conventional providers	27.4 (225)	20.9–33.9	39.7 (97)	28.5–50.9	24.5 (28)	7.8–41.2	18.8 (100)	10.6–27.0
All complementary methods	47.9 (300)	40.4–55.4	47.2 (123)	36.8–57.6	45.6 (41)	28.0–63.2	50.4 (136)	35.9–64.9
Physical methods*	61.8 (212)	53.6–70.0	56.2 (80)	46.2–56.2	47.0 (34)	26.2–67.8	68.3 (98)	55.8–80.8
Chiropractic	60.7 (117)	47.6–73.8	53.0 (44)	36.3–69.7	57.4 (17)	27.8–87.0	65.0 (56)	44.8–85.2
Massage	64.9 (85)	52.6–77.2	59.6 (26)	38.4–80.8	36.7 (12)	4.8–68.6	71.6 (47)	56.3–86.9
Yoga	47.8 (10)	10.4–85.2	—	—	—	—	—	—
Taken by mouth*	19.3 (23)	0–40.3	16.5 (10)	0–39.2	—	—	19.7 (10)	0–52.0
Herbs	45.5 (11)	2.8–88.2	—	—	—	—	—	—
Cognitive*	39.0 (70)	22.3–55.7	40.7 (28)	15.8–65.6	—	—	38.5 (34)	13.8–63.2
Relaxation techniques	42.9 (58)	26.2–59.6	42.2 (23)	19.3–65.1	—	—	44.6 (28)	19.1–70.1
Imagery	35.0 (13)	0–73.2	—	—	—	—	—	—
Other*	37.4 (64)	20.9–53.9	39.5 (24)	17.4–61.6	—	—	32.1 (34)	10.4–53.8
Energy	62.5 (16)	33.3–91.7	—	—	—	—	—	—
Aroma	39.5 (10)	0–88.3	—	—	—	—	—	—
Neural	34.9 (11)	0–70.6	—	—	—	—	—	—
(n)†	(644)		(242)		(102)		(300)	

* Data not shown for therapies for which <10 respondents provided data.
† Sample sizes presented are unweighted. Percentages and confidence intervals are based on weighted data.
‡ Sample size for aggregate complementary groups is smaller than sum of individual therapies because some respondents visited more than one type of provider.

methods being rated as "very helpful" for back or neck pain in 62% of cases. Other complementary therapies had lower perceived helpfulness, such as "therapies taken by mouth," which were perceived as "very helpful" in 19% of cases. Conventional providers were perceived as having been "very helpful" for back or neck pain in 27% of cases.

Table 5. Visits to Complementary Professionals Made in the Last 12 Months Specifically for the Purpose of Treating Back or Neck Pain

	Saw Practitioner in Past 12 Months (%)	Mean No. of Visits for Back or Neck Pain	Estimated Total No. of Visits in 1997 (in millions)*
Chiropractic	18.0	8.5	88.5
Massage	9.0	5.4	32.8
Energy healing	2.0	13.6	20.8
Homeopathy	2.0	1.0	1.1
Imagery	1.9	1.7	2.9
Relaxation techniques	1.7	17.4	22.1
Aromatherapy	1.0	1.3	0.7
Special diet therapy	1.0	2.7	1.5
Acupuncture	0.9	2.6	1.6
Neural therapy	0.8	6.6	4
Yoga	0.3	42.5	10.7
Other	2.8	—	16.7
Total†	34.1	—	203,000

* Estimates based on 1997 U.S. adult population estimate of 198 million.
† Total frequency is less than the sum of individual frequencies because some respondents used more than one provider type.

Visits Made to Complementary Providers for Treatment of Back or Neck Pain

Previous analyses from this data set have suggested that there were 628 million visits made to complementary providers in 1997.[11] We estimate that 32% of these visits, or 203 million visits, were made specifically for the purpose of treating back or neck pain. This is a higher percentage than that for any other class of medical condition assessed in the survey. Table 5 provides a breakdown of the estimated number of visits made to different types of complementary providers for the purpose of treating back or neck pain. Chiropractors and massage therapists were the two most frequently seen provider types, being seen by 18% and 9% of those with back or neck pain, respectively. Providers of relaxation techniques, energy healing, and yoga were used less often but contributed substantially to the overall number of visits because of the high mean number of visits by users.

■ Discussion

We found that back pain and neck pain were most commonly treated with complementary therapies alone or a combination of complementary and conventional medicine, whereas use of conventional medicine alone was an infrequent mode of care. Although the physical methods of chiropractic and massage were used most commonly, a wide variety of other complementary methods were also used to treat back and neck pain. Among the commonly used therapies, chiropractic and massage were rated as "very helpful" for back and neck pain by two of

three users, whereas one in four users rated conventional providers as "very helpful." Because of the high prevalence of back and neck pain and because of the frequency of visits made to complementary providers for treatment, we estimate that >200 million visits were made to complementary providers specifically for the treatment of back or neck pain in 1997. Although >88 million of these visits were made to chiropractors, >10 million visits were made to providers of massage, energy healing, relaxation techniques, and yoga.

We found that one in three Americans with back or neck pain in the last year used complementary professionals to treat their condition during that period. Although chiropractors are known to play a prominent role in the treatment of back and neck pain,[9,15] accounting for almost two-thirds of all visits for low back pain in one national survey,[15] the extent to which other complementary professionals participate in the care of patients with back and neck pain has not been previously measured. As shown in Table 5, our analysis suggests that a diverse group of complementary professionals combine to account for more visits for back and neck pain care visits than chiropractors. Massage therapists are the third most frequently used health provider for persons with back or neck pain behind conventional providers and chiropractors, with almost 1 in 10 of those with back or neck pain visiting a massage therapist specifically for their condition in the last year. Providers of relaxation techniques, energy healing, and yoga are used less frequently but contribute substantially to the total number of visits made to complementary professionals for back or neck pain because of the high frequency of visits by users of these therapies.

Complementary professionals combined to provide an estimated 203 million visits specifically for the treatment of back and neck pain in 1997, leaving only 426 million complementary professional visits for all other purposes combined. By comparison, in 1997 there were approximately 386 million visits to all primary care physicians for any reason at all.[21] Although we were not able to determine the number of visits made to conventional providers for the treatment of back or neck pain, our data combined with that of others[15] suggest that chiropractors and other complementary professionals, especially massage therapists, are frequently used and accounted for the vast majority of visits caring for people with back or neck pain in 1997.

The high perceived helpfulness of commonly used complementary methods, especially massage and chiropractic, which were judged as "very helpful" for back or neck pain in 65% and 61% of cases, respectively, stands in contrast to the low perceived effectiveness of conventional therapies, which were judged as "very helpful" for back or neck pain in only 27% of cases. It is important to note that observational studies such as ours cannot be used to test hypotheses regarding relative effectiveness, making our data on helpfulness inappropriate for assessment or comparisons of efficacy. Other factors contributing to the high perceived helpfulness of certain complementary therapies in our survey may include the presence of good prognostic features among patients seeking these therapies,[13,16] patient beliefs about treatments and expectations for the therapeutic encounter,[4,18] interpersonal characteristics of the provider–patient encounter,[14,20] and other features of the patient visit, such as provision of information and degree of patient involvement.[5,14] Identification and integration of these or other important contributing factors could potentially increase patient satisfaction in a wide variety of settings. Finally, our data on helpfulness support the need for randomized trials of promising complementary therapies.

Our study has several limitations. First, our survey was based on self-report, making it subject to recall bias. We allowed respondents to classify themselves as having back or neck problems, resulting in a condition frequency similar to that reported in some other surveys but slightly higher than that for a national survey with a more stringent definition of "an episode lasting 2 weeks or more." Because of our less stringent criteria, our sample probably includes some of those who had only a short episode of back or neck pain and may have been less likely to seek care. Self-report was also used to determine the number of visits made to different types of medical providers. Because recall tends to underestimate the actual number of visits made as the number of visits increases,[19] this may have led to an underestimation of the number of visits made by high frequency users of complementary services. Second, our survey resulted in a weighted response rate of 60% and therefore is subject to nonresponse bias. However, such bias was reduced by offering monetary incentives to subjects who initially declined and reweighting the sample. This procedure provides at least some representation of the initial nonresponders. Third, for the purposes of some analyses, we combined patients with low back, upper back, and neck pain. Our combination of these similar musculoskeletal conditions was supported by our analyses as reported in Tables 1 and 2, suggesting that therapy utilization patterns and the perceived effectiveness of therapies were generally similar among the conditions. However, we recognize that although back pain and neck pain are related spinal disorders with significantly overlapping etiologies, natural history, and treatment recommendations,[2,8] they represent distinct diagnostic and treatment entities. Fourth, our survey did not measure the severity of respondents' back or neck pain; therefore, we were unable to assess the extent to which certain types of providers saw persons with pain that was more or less severe. For example, conventional providers may see patients who have more severe back or neck pain, a selection bias that at least may partially account for our findings of low levels of perceived helpfulness among those seeking care from conventional providers. Fifth, our method of estimating the number of visits made to complementary providers specifically for the purpose of

treating back and neck pain may have resulted in some bias. Because our estimation technique gave back or neck pain the same weighting as any other reported medical condition, we may have either overestimated or underestimated back and neck pain visits. Last, because complementary medicine use varies from culture to culture and our survey was limited to English-speaking persons living in the United States, our results may have limited application among non–English-speaking U.S. residents or people in other countries.

Overall, we found that people with back or neck pain were most often given care for their condition through the use of complementary therapies either as self-care or as a provider-based therapy. Our analyses also document for the first time the important role that complementary providers other than chiropractors, particularly massage therapists, currently play in the care of those with back or neck pain. We think that the high prevalence of complementary medicine use and the high perceived helpfulness of some complementary therapies for back and neck pain support the need for efficacy studies of these complementary therapies as well as further investigation of the reasons patients seek these therapies.

■ Key Points

- Back pain and neck pain are common conditions for which people frequently seek medical care.
- Alternative therapies, particularly chiropractic, massage therapy, and relaxation techniques, are frequently used to treat back pain or neck pain.
- A number of complementary methods are frequently perceived as "very helpful" for the treatment of back or neck pain.
- One-third of all visits to complementary providers were made specifically to treat back or neck pain, more than for any other medical condition.

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■ Appendix

Complementary therapies consisted of a core list of 16 modalities outlined in previous work[10] (relaxation techniques, herbal medicine, massage, chiropractic, megavitamins, self-help group, imagery, commercial diet, folk remedies, lifestyle diet, energy healing, homeopathy, hypnosis, biofeedback, spiritual healing by others, and acupuncture) as well as additional complementary therapies that are less easily defined and were used less frequently than those in the core list. Therapies specifically not included in the definition of complementary therapies for our analyses were self-prayer and exercise.

Point of View

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This article adds usefully to the growing body of information about the use of complementary and alternative medicine providers by patients with back and neck pain. Whereas the substantial use of chiropractors by such patients has already been well documented, this study adds new knowledge about the use of yoga, massage, energy healing, and relaxation techniques. This is useful information to help guide policy makers and researchers interested when considering gaps in the knowledge base regarding the relative effectiveness, harms, and costs of these therapies for patients with back and neck pain. The authors' data on self-perceived efficacy of therapy are, however, not useful for drawing any conclusions about the effectiveness of these therapies. Useful data regarding effectiveness can only come from well-conducted randomized clinical trials.

From the RAND Corporation, Santa Monica, California.
The manuscript submitted does not contain information about medical device(s)/drug(s).
No funds were received in support of this work. No benefits in any form have been or will be received from a commercial party related directly or indirectly to the subject of this manuscript.
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