

Patient-Reported Physician Treatment Recommendations and Compliance Among U.S. Adults with Low Back Pain

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Abstract

Objectives: Numerous recently published clinical care guidelines, including the 2017 American College of Physicians (ACP) Guideline for Low Back Pain (LBP), call for nonpharmacological approaches to pain management. However, little data exist regarding the extent to which these guidelines have been adopted by patients and medical doctors. The study objective was to determine patient-reported treatment recommendations by medical doctors for LBP and patient compliance with those recommendations.

Design: This study used a cross-sectional web and mail survey.

Settings/Location: The study was conducted among Gallup Panel members across the United States.

Subjects: Survey participants included 5377 U.S. adults randomly selected among Gallup Panel members. Of those, 545 reported a visit to a medical doctor within the past year for low back pain and were asked a series of follow-up questions regarding treatment recommendations.

Interventions: Participants were asked about medical doctor recommendations for both drug (acetaminophen, nonsteroidal anti-inflammatory drugs [NSAIDs], opioids, benzodiazepines, Gabapentin, Neurontin, and cortisone injections) and nondrug (self-care treatments, massage, acupuncture, spinal manipulation, and physical therapy) treatments.

Outcome Measures: Participants were asked to indicate if their medical doctor recommended each drug and nondrug therapy for their LBP and if they had followed each of those treatment recommendations.

Results: Ninety-six percent of patients who visited a medical doctor for LBP received a recommendation for one or more pain treatments, with 81% reporting that their medical doctor recommended both drug and nondrug therapies. Seventy-six percent of respondents were recommended acetaminophen or NSAIDs, 79% were recommended self-care treatments, 37% were recommended massage, acupuncture, or spinal manipulation, and 60% were recommended physical therapy. Nearly two-thirds of our sample reported that their doctor had recommended prescription medications, including opioids, benzodiazepines, Gabapentin, Neurontin, or cortisone injections. Reported adherence to treatment recommendations ranged from 68% for acupuncture to 94% for NSAIDs.

Conclusions: One year after publication of the ACP's Guideline on LBP, patients report that medical doctors recommended both pharmacological and nonpharmacological treatment approaches to patients with LBP. In the majority of cases, a combination of prescription medications and self-care were recommended, illustrating the need for additional research on the effectiveness of multi-modal treatment strategies. Patients reported that they were largely compliant with medical doctor recommendations, underscoring the influence that medical doctors have in directing patient care for LBP. These findings indicate that further work is also needed to explore the impact of

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personal experience, training, clinical evidence, sociocultural factors, and health plans on medical doctors' therapeutic recommendations in the context of back pain.

Keywords: low back pain, nonpharmacological treatments, clinical practice guidelines

Introduction

LOW BACK PAIN (LBP) is the most common cause of musculoskeletal pain, impacting just less than 30% of adults in the United States 18 years and older, approximately half of whom report visiting a physician for this complaint within the past year.¹ Direct medical expenditures for low back and neck pain in the United States were estimated at \$124 billion in 2016, representing the highest health care expenditure in the country.^{2,3} The burden and costs associated with LBP are magnified by the fact that conventional medical care currently has little to offer these patients. Commonly used treatments, including prescription medications such as opioids, are of questionable benefit and can lead to harm.⁴ Driven largely by the opioid crisis,⁵ a number of public and private organizations^{6–8} now recommend nonpharmacological therapies as a first-line treatment for patients suffering from noncancer pain.

One guideline directed at changing the behavior of both physicians and patients is the American College of Physicians' (ACP) Guideline on LBP, released in February 2017.⁶ The ACP guideline calls for the use of nonpharmacological treatments before initiation of any prescription medication. Specifically, the guideline recommends acupuncture, massage, spinal manipulation, and superficial heat for those suffering from acute and subacute LBP whereas exercise, progressive relaxation, spinal manipulation, tai chi, and yoga are recommended for chronic LBP. If nonpharmacological treatments are not effective, the guideline states they should be first followed by nonsteroidal anti-inflammatory drugs (NSAIDs), and then duloxetine and/or tramadol and duloxetine, with consideration of opioids only when other recommended treatments have failed.

Although adoption of previous LBP guidelines has been low,^{9–11} it is possible that increased efforts to disseminate information to both physicians and the public about the risks associated with opioid use have accelerated implementation of the more recent ACP recommendations.¹² However, the extent to which ACP-recommended nonpharmacological treatments have been implemented at a meaningful level into clinical practice or followed by patients is unknown. The purpose of this study was to evaluate the extent to which (1) patient-reported physician treatment recommendations were consistent with the ACP LBP guideline in the year after its release and (2) patient-reported compliance with those recommendations. To address these questions, we worked with Gallup to survey a stratified random sample of U.S. adults who sought care from medical doctors (MDs) for LBP within the past year.

Methods

Results are based on a Gallup Panel web and mail survey. The study was determined to be exempt by the Palmer College Institutional Review Board (X-2018-2-28-M). Noninstitutionalized U.S. adults were selected from the Gallup Panel, a probability-based panel, and recruited by

using random-digit dial phone interviews that cover landline, cellphones, and address-based sampling methods. There are more than one million adults who can be recontacted by Gallup for studies and among this group more than 100,000 have agreed to complete regular surveys as part of the Gallup Panel, making it the largest probability-based panel in the world. The Gallup Panel is not an opt-in panel.

Approximately 80,000 panel members have provided Gallup with contact information other than a phone number and can be reached for web or mail surveys. Another 20,000 panel members do not have email access but can be reached for mail and phone surveys. Panel members receive an average of three surveys per month, and the typical survey is 10–15 min in length. Most Gallup Panel surveys are self-administered, and Gallup typically sends respondents an invitation and up to five reminders. The average response rate on a Gallup Panel survey is ~40%–45%, depending on length of survey, length of field period, and survey topic.

Members may remain on the panel for as long as they would like, given that they continue to participate. Gallup frequently reviews participation records and refreshes the panel sample. Members who have been invited to but have not participated in any surveys for more than six months are contacted by Gallup and encouraged to participate and update contact information. Members who continue to be nonresponders are removed from the panel. Gallup conducts regular recruiting efforts to refresh the sample and recruit new members. Unequal selection probabilities at the selection stage are taken into account in the panel weight assigned to each member.

Gallup maintains demographic information on all panel members, including basic information such as age, gender, race/ethnicity, and education level. Panel members are also asked to complete a demographic profile when they join, which gathers more in-depth information such as employment status. Panel members are not required to answer these questions, and this information is missing for some records.

Gallup customizes sampling to ensure that a sample representative of the target population is drawn. To minimize the increase in variance due to weighting and to account for anticipated nonresponse by demographic group, Gallup statisticians drew a stratified sample from the overall panel based on demographic variables that are most susceptible to different response rates: age, race/ethnicity, and education. Gallup oversampled racial/ethnic minorities and individuals with lower education levels to help compensate for lower than average response rates in these groups. Within each stratum, the sample was selected randomly with equal probability. The sample was drawn to match the demographic distribution of the U.S. population based on a 2015 Current Population Survey.¹⁵ Gallup also applied weighting to the final data by matching the sample's weighted demographic distributions (age, gender, education, race and ethnicity, and region) to the population targets by using the 2015 Current Population Survey.

Respondents who had participated in a previous Gallup study about chiropractic care were excluded from this survey. Anyone with an email address received a web survey and those without one received a mail survey. Mail respondents are typically older and less technologically connected than web respondents. In a typical study, about 5% of respondents come from mail respondents. Mail respondents alone are not representative of any particular population in the United States, but their involvement in this study was important to ensure the full sample, including both mail and web respondents, was representative of the overall U.S. population.

Survey questions were developed in consultation with the authors and several Gallup survey research methodologists. Testing was completed among a small sample of U.S. adults by using cognitive interviews. Testing respondents were asked each survey question verbally and after providing their responses, the interviewers asked for their interpretation of the question and received feedback, which was used to finalize the survey questions.

The survey asked questions about health care professionals who were seen for neck and back pain (see Supplementary File S1 for survey questions). Respondents who saw an MD for neck or back pain in the past 12 months were asked whether their MD had recommended different drug and nondrug therapies for their pain, and further queried whether they did what the MD recommended. Participants were advised "If you saw more than one medical doctor in the past 12 months, please think about the one you saw most recently."

We used the SURVEYFREQ and SURVEYLOGISTIC procedures in SAS (Release 9.4; SAS Institute, Inc., Cary, NC, USA) to conduct data analyses. We created a separate category of missing data for each response and included it in all analyses. We calculated descriptive statistics based on the weighted data for demographics and reported unweighted frequencies, weighted percentages, and 95% confidence intervals (CIs) based on the Wilson method. We compared demographics for respondents who reported that they had seen a health care professional for LBP in the past 12 months between those who did or did not see an MD on the weighted data with the Rao-Scott likelihood ratio chi-square statistic. We also compared the demographic data with the census data from the 2015 Current Population Survey.¹³ Next, we calculated descriptive statistics for drug and nondrug therapies. We reported unweighted frequencies, weighted percentages, and 95% CIs based on the Wilson method for three responses: (1) those who reported using a therapy; (2) those who reported using a therapy following an MD's recommendation; and (3) those who reported using a therapy, but without an MD's recommendation. Finally, we fit generalized logit regression models on the weighted data to examine the association between recommended drug treatments and nondrug therapies classified as self-care and provider-based nondrug therapies, adjusting for sex, age, race, education, and U.S. region. We reported adjusted odds ratios (ORs) and 95% CIs from the models.

Results

Gallup invited 12,699 adults, aged 18 years and older, to participate in a brief survey with 5377 U.S. adults choosing to participate for a response rate of 42.3%. Most respondents, 4882, completed the survey online and 495 (9%)

completed it by using a paper survey they received in the mail. The study was conducted from March 12 through April 10, 2018.

Among the 5377 participants, 3540 (66%) responded that they had neck or back pain that was significant enough that they saw a health care professional for care at some point in their lifetime, including 1336 (25%) who did so in the past 12 months. Of the 1035 respondents who reported that they had seen a health care professional for LBP in the past 12 months, more than half ($n=545$) saw an MD. Respondents reported seeing many different health care professionals for their LBP, including MDs, osteopathic physicians, physician assistants, nurse practitioners, doctors of chiropractic, physical therapists, massage therapists, acupuncturists, and spine surgeons. Twenty-one percent (113/545) reported seeing only an MD.

Table 1 describes demographics of the 545 survey respondents who saw an MD for their LBP in the past 12 months, the group of interest, as well as those who had LBP but did not see an MD ($n=490$). Based on the weighted data, 53% of those who saw an MD for their LBP were female and 70% were white, with mean age 52 years (range 20–92). With the exception of sex, age, and body mass index, the characteristics of those who saw an MD for LBP differed from those who did not (Table 1). Comparing the percentages from the 2015 census with the 95% CIs for those who saw an MD for their LBP in the past 12 months, we found that our respondents differed as followed: less white race; less college graduates, but more associate degrees and trade school education; more who made <\$35,000 and less who made \$75,000+; and less full-time employment.

Table 2 gives the weighted percentage and 95% CI for each nondrug and drug therapy recommended to respondents by their MD for LBP. Table 2 also gives the weighted percentages of respondents who reported following the MD's recommended therapy and who used a therapy without an MD's recommendation.

Ninety-six percent (95% CI 90–98) of respondents reported that their MD recommended at least one therapy for their LBP. Sixty-two percent (CI 55–69) were recommended opioids, benzodiazepines, Gabapentin, Neurontin, or cortisone injections. Of those, more than 89% followed the recommendation to take prescription medications, whereas 70% did so for cortisone injections (Table 2). Seventy-six percent (CI 70–82) of respondents were recommended acetaminophen or NSAIDs, with 80% and 94% following the recommendation, respectively. Seventy-nine percent (CI 72–84) were recommended self-care treatments, including applying superficial heat or ice, yoga, stretching, or other exercises. Thirty-seven percent (CI 31–44) were recommended massage, acupuncture, or spinal manipulation, with 88%, 68%, and 79% following the recommendation, respectively. Sixty percent were recommended physical therapy, with 73% following the recommendation (Table 2).

A greater percentage of respondents with LBP reported that they used either drug and/or nondrug therapies when recommended to do so by their MD than used these therapies without a recommendation (Table 2). Respondents' use of nondrug therapies without an MD's recommendation was prevalent, with more than 50% reporting use of superficial heat, 40% reporting use of yoga, stretching, or other exercises, 25% reporting use of massage, and 19% reporting use of spinal manipulation.

TABLE 1. DEMOGRAPHICS OF SURVEY RESPONDENTS REPORTING LOW BACK PAIN OVER THE PAST 12 MONTHS BY WHETHER THEY SAW A MEDICAL DOCTOR FOR THEIR LOW BACK PAIN

Demographics	Saw MD for LBP (n=545)			Did not see MD for LBP (n=490)			p	2015 Census %
	n	Weighted %	95% CI	n	Weighted %	95% CI		
Female sex	263	53.2	46.2–60.1	271	58.3	51.7–64.6	0.30	52
Age							0.83	
18–34	31	21.0	14.6–29.11	37	22.1	16.3–29.3		28
35–49	75	20.4	14.9–27.2	93	24.3	18.8–30.7		22
50–64	213	33.7	27.8–40.2	197	31.1	25.8–36.8		32
65+	225	24.8	20.3–30.0	162	22.4	17.7–27.9		20
Race							<0.001	
White	467	70.0	61.8–77.1	437	82.1	75.1–87.4		80
Black	37	14.8	9.7–21.9	16	5.9	3.0–11.1		11
Hispanic	25	14.2	8.9–22.9	19	7.4	4.0–13.3		13
Other	7	0.5	0.2–1.6	10	2.0	1.0–4.1		9
Married	343	55.7	48.5–62.7	326	66.9	59.1–72.0	0.02	48
BMI							0.11	NA
Overweight	182	29.1	23.4–35.6	171	33.3	27.2–40.1		
Obese	220	46.4	39.4–53.5	162	34.8	28.9–41.3		
Education							0.001	
High school or less	94	36.0	29.4–43.2	56	24.7	18.9–31.6		39
Some college/associate degree/trade school	211	42.4	35.5–49.6	182	40.1	33.6–46.7		30
College graduate or higher	238	21.3	17.2–26.1	250	35.2	29.6–41.2		32
Annual household income							<0.001	
<\$35,000	125	34.2	27.6–41.6	72	19.9	14.5–26.5		25
\$35,000 to <\$75,000	150	28.1	22.2–34.9	130	25.9	20.7–32.0		28
\$75,000+	231	32.2	26.2–38.7	253	48.8	42.2–55.4		47
Employment status							0.03	
Full-time	191	40.0	33.2–47.2	235	53.7	47.1–60.2		70
Part-time	49	9.3	5.9–14.3	57	10.9	7.3–15.8		NA
Retired, homemaker, full-time student	278	45.6	38.8–52.6	184	31.9	26.3–38.2		NA
Unemployed	16	3.0	1.5–6.1	7	1.8	0.6–5.2		NA
Region							0.002	
Northeast	89	15.9	11.8–21.1	81	16.4	12.3–21.7		19
Midwest	99	14.6	10.6–19.7	124	25.4	20.0–31.7		21
South	205	43.8	36.9–50.9	140	29.2	23.6–35.5		37
West	150	25.7	19.8–32.6	143	28.6	22.9–35.1		23

p-Value based on the Rao-Scott likelihood ratio chi-square statistic; weights based on the 2015 Current Population Survey (2015 Census); 2019 Census figure is listed for married.

BMI, body mass index; CI, confidence interval; LBP, low back pain; MD, medical doctor; NA, not available.

Eighty-one percent (CI 74–86) of respondents with LBP reported that their MD recommended both drug and non-drug therapies. The odds of those recommended drug therapies were 5.2 times higher in those also recommended self-care (superficial heat or ice/cold packs and yoga, stretching, or other types of exercises) than those who were not recommended self-care (adjusted OR 5.2, 95% CI 2.0–15.5), but no more likely to have been recommended provider-based nondrug care (massage, acupuncture, spinal manipulation, and physical therapy; OR 1.1, CI 0.4–3.0). Table 3 presents the adjusted ORs of those recommended each of the drug treatments with self-care and provider-based nondrug therapy recommendations. Respondents recommended that NSAID were more likely to have also been recommended both self-care (OR 5.0, CI 2.2–11.6) and provider-based nondrug therapy (OR 2.5, CI 1.3–4.8). Those recommended acetaminophen were more likely to have been recommended self-care (OR 2.3, CI 1.0–5.3).

Discussion

The purpose of this study was to evaluate patient-reported implementation of therapeutic approaches for LBP treatment that are aligned with recommendations included in the 2017 ACP guideline for LBP by both MDs and patients. In a seminal article on the implementation of new treatment approaches in health care delivery, Proctor et al.¹⁴ argue that affecting meaningful change requires that the implementation process itself be evaluated separately from the evaluation of clinical outcomes to determine the extent to which success or failure is due to either processes or the intervention itself. Key findings from our study shed light on one of Proctor's key outcome measures—adoption.

First, we learned from the respondents' reported recommendations that MDs had not yet adopted best practices regarding the use of prescription medications. The correlation between back pain and the use of opioids has already been

TABLE 2. SURVEY RESPONDENTS WHO SAW A MEDICAL DOCTOR FOR THEIR LOW BACK PAIN IN THE PAST 12 MONTHS (N=545)

	Saw MD for LBP			Followed MD recommendation			Used without MD recommendation		
	n	Weighted %	95% CI	n	Weighted %	95% CI	n	Weighted %	95% CI
Nondrug treatments recommended by medical doctor for back pain in the past 12 months									
Applying superficial heat	334	62.2	55.1–68.7	315	96.6	93.2–98.3	83	51.1	38.3–63.7
Applying ice or cold packs	328	58.8	51.7–65.5	277	87.1	80.2–91.8	49	25.5	16.4–37.4
Yoga, stretching, or other types of exercises	286	49.7	42.7–56.7	251	89.8	82.1–94.4	78	40.1	29.3–52.0
Massage	150	28.6	22.6–35.4	130	87.7	77.4–93.6	72	25.3	17.9–34.5
Acupuncture	38	5.3	3.5–8.1	24	68.4	47.8–83.7	21	6.2	2.9–13.1
Spinal manipulation	99	18.4	13.7–24.2	79	78.8	65.0–88.2	55	18.5	12.2–26.7
Physical therapy	328	59.5	54.5–66.0	256	71.3	62.0–79.1	21	12.4	5.8–24.4
Drug treatments recommended by medical doctor for back pain in the past 12 months									
Opioids	160	27.0	21.5–33.2	148	89.4	75.4–95.8	36	11.0	7.1–16.6
Benzodiazepines	119	27.0	21.3–33.6	104	90.0	81.4–94.8	30	6.6	4.0–10.8
Gabapentin/Neurontin	126	20.2	15.8–25.4	113	89.1	79.0–94.7	7	1.6	0.5–4.6
Cortisone injections	205	33.5	27.3–40.2	142	70.4	58.8–79.9	17	4.5	2.1–9.2
Acetaminophen	268	44.7	37.8–51.7	228	79.7	69.1–87.3	68	28.0	20.0–37.7
NSAID	349	64.5	57.7–70.8	328	94.3	88.1–97.4	55	35.7	25.5–47.4

n, number who responded “Yes” that they had tried the therapy. Weights based on the 2015 Current Population Survey. LBP, low back pain; MD, medical doctor; NSAID, nonsteroidal anti-inflammatory drug.

established, with a majority of opioid users reporting that they suffer from back pain.¹⁵ However, the known risks of death and overdose resulting from opioids,^{16,17} coupled with increasing pressure to avoid opioid prescribing,⁵ make the high number of our respondents (29%) who reported that their MD recommended the use of opioids in the past 12 months surprising. In addition, more than a third of respondents (38%) reported a recommendation of cortisone injections, a treatment that may offer short-term benefit,¹⁸ but it is also associated with a significant risk of contamination and infection.¹⁹ Cortisone injections are generally not recommended in clinical care guidelines due to weak evidence for pain and function benefits.⁴ Benzodiazepines and Gabapentin were reported to have been recommended to 29% and 22% of respondents, respectively; 91% reported following those recommendations. Gabapentin is only recommended for acute pain amelioration at 5–7 days, whereas the data on benzodiazepines for pain and function benefit are rated as “insufficient.”⁴

Second, patient-reported use of over-the-counter medications in our sample was high in spite of questionable benefits and known risks. Nearly 80% of respondents reported that they received a recommendation from their MD to take either acetaminophen or NSAIDs. NSAIDs may result in a small-to-moderate effect on pain and function for both acute and chronic LBP.⁴ However, the risks of gastrointestinal bleeding associated with NSAIDs are well established^{20,21} and a recent review found that even short-term NSAID use is related to a higher incidence of acute myocardial infarction.²² The FDA warns that acetaminophen can result in both severe liver injury and allergic reactions.⁷ Although these side effects are not common, and complications less severe than those generally associated with prescription medications,²³ the risks must be weighed against recent findings that there is no evidence of benefit in terms of pain or function for either acute or chronic LBP.⁴

TABLE 3. ADJUSTED ODDS RATIOS OF THOSE RECOMMENDED DRUG TREATMENTS FOR THEIR LOW BACK PAIN WITH SELF-CARE AND PROVIDER-BASED NONDRUG THERAPY (N=545)

Drug treatments recommended by medical doctor for low back pain in the past 12 months	Self-care			Provider based nondrug therapy		
	OR	95% CI		OR	95% CI	
		Lower	Upper		Lower	Upper
Opioids	0.9	0.3	2.5	1.4	0.7	2.9
Benzodiazepines	1.4	0.5	4.1	2.1	0.9	5.0
Gabapentin/Neurontin	1.3	0.5	3.4	1.0	0.5	2.0
Cortisone injections	1.2	0.5	2.9	1.6	0.8	3.2
Acetaminophen	2.3	1.0	5.3	1.3	0.7	2.5
NSAID	5.0	2.2	11.6	2.5	1.3	4.8

Adjusted for sex, age, race, education, and U.S. region. Self-care includes heat, cold, and yoga/stretching/other exercises. Provider-based nondrug therapy includes massage, acupuncture, spinal manipulation, and physical therapy.

Third, reported use of self-directed care, such as superficial heat, yoga or other exercises, as well as therapies provided by complementary and integrative health practitioners such as spinal manipulation and massage, was relatively high in respondents who did not receive a recommendation by an MD to do so. It is not surprising that the reported use of prescription medications not recommended by an MD was substantially lower than recommended use; however, reported use of opioids and/or benzodiazepines that were not recommended by an MD was reported by 11% of respondents.

Fourth, contrary to existing data indicating that overall compliance with recommended LBP treatments is relatively low, the vast majority of respondents in this study reported that they followed their MD's recommendations, regardless of which therapy was recommended. As seen in previous work, more patients have a higher preference to see an MD for their back or neck pain, even though they report that both chiropractic and physical therapy are safer and more effective.²⁴ Such data remind us of the critical role that MDs play in influencing the LBP care received by their patients.

Finally, it is of interest that the vast majority of patients reported that their MD had recommended a combination of both prescription medications and nondrug approaches for their LBP. More research is needed regarding the efficacy and effectiveness of multi-modal treatment approaches for LBP.

The findings from this study illustrate that though progress has been made, there may still be significant gaps between current LBP guidelines and patient care. Future implementation strategies should focus on simultaneously training physicians and educating patients regarding guideline-concordant treatment approaches for LBP. However, we also need to involve additional stakeholders, including payers and health systems. A recent study found that public and private insurer payment policies result in significant barriers to the use of nonpharmacological therapies for the treatment of LBP, including preauthorization requirements, caps on utilization, and significant out-of-pocket costs for patients.²⁵ Taylor et al. offer further insight into implementation strategies for guideline-concordant complementary and integrative health treatment approaches in health systems.²⁶ Their qualitative work in the Department of Veterans Affairs medical centers identified key facilitators (strong and enthusiastic program leads/champions, evidence of treatment effectiveness, and positive perceptions of patient attitudes) and barriers (insufficient funding to provide complementary and integrative treatments, difficulty in coding/documentation and culture).

Limitations

This study has limitations that are common to survey research. The sample is made up entirely of respondents who willingly joined a survey research panel when asked. Panel surveys are susceptible to attrition bias. However, this concern is mitigated by the fact that Gallup uses a cross-sectional panel and panelists who attrite are replaced with new panel members. Consistent with Gallup's survey methodology, extensive testing of survey questions was not employed before fieldwork. However, our findings that 20% of U.S. adults surveyed reported LBP severe enough to require a visit to a health care provider are consistent with previous estimates of both physician visits¹ and 1-year prevalence rates.²⁷

Although respondents in this study are demographically diverse and the data are weighted against known population statistics to be representative of the U.S. adult population, we found some differences between our sample and census data. Thus, it is possible that nonresponse bias is present. Missing data in surveys is a known limitation. Respondents are not forced to answer every question and may choose to skip questions, possibly resulting in a nonresponse error. In addition, concerns exist regarding the extent to which patients are able to accurately recall physician instructions.²⁸ However, a recent study found that 49% of patients were able to accurately describe physician recommendations, with an additional 36% able to recall information when prompted.²⁹ The Gallup survey questions may have served as such a prompt. It is also important to note that we were not able to identify what, if any implementation strategies were utilized in the period of time between release of the ACP guidelines and the conduct of our survey. This information would have been helpful in identifying future efforts aimed at knowledge translation.

Finally, the survey captures patient self-report data rather than data collected directly from physician offices and did not capture sequencing of care recommendations. Thus, it is not possible to verify what physicians actually recommended or draw conclusions regarding whether nondrug therapies were recommended before the use of prescription medications. We were also not able to determine whether survey participants saw multiple MDs for their LBP or a single MD multiple times. However, as noted earlier, survey respondents were asked to focus on recommendations made by the MD they had seen most recently.

Conclusions

One year after publication of the ACP's Guideline on LBP, MDs recommended both pharmacological and non-pharmacological treatment approaches to patients with LBP. In the majority of cases, a combination of prescription medications and self-care were recommended, illustrating the need for additional research on the effectiveness of multi-modal treatment strategies. Patients were largely compliant with MD recommendations, underscoring the influence that MDs have in directing patient care for LBP. These findings indicate that further work is also needed to explore the impact of personal experience, training, clinical evidence, sociocultural factors, and health plans on MDs' therapeutic recommendations in the context of back pain.

Authors' Contributions

C.M.G., C.E., W.M., and D.M.M. led survey design. C.E. oversaw survey implementation. C.R.L. performed data analysis. C.M.G. and C.R.L. led manuscript development. All authors reviewed and approved the manuscript before submission.

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Supplementary Material

Supplementary File S1

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