Characteristics of US Adults Who Have Positive and Negative Perceptions of Doctors of Chiropractic and Chiropractic Care

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Abstract

Objective: The purpose of this study was to compare characteristics, likelihood to use, and actual use of chiropractic care for US survey respondents with positive and negative perceptions of doctors of chiropractic (DCs) and chiropractic care.
Methods: From a 2015 nationally representative survey of 5422 adults (response rate, 29%), we used respondents' answers to identify those with positive and negative perceptions of DCs or chiropractic care. We used the χ^2 test to compare other survey responses for these groups.
Results: Positive perceptions of DCs were more common than those for chiropractic care, whereas negative perceptions of chiropractic care were more common than those for DCs. Respondents with negative perceptions of DCs or chiropractic care were less likely to know whether chiropractic care was covered by their insurance, more likely to want to see a medical doctor first if they were experiencing neck or back pain, less likely to indicate that they would see a DC for neck or back pain, and less likely to have ever seen a DC as a patient, particularly in the recent past. Positive perceptions of chiropractic care and negative perceptions of DCs appear to have greater influence on DC utilization rates than their converses.
Conclusion: We found that US adults generally perceive DCs in a positive manner but that a relatively high proportion has negative perceptions of chiropractic care, particularly the costs and number of visits required by such care. Characteristics of respondents with positive and negative perceptions were similar, but those with positive perceptions were more likely to plan to use—and to have already received—chiropractic care. (J Manipulative Physiol Ther 2016;39:150-157)
Key Indexing Terms: *Chiropractic; Health Services Research; Public Opinion; Social Perception*

Back pain is the leading cause of disability in the world, with global prevalence and burden increasing overall and particularly with age.[1] In the United States in 2013, 27.5% of the adult population reported low back pain in the prior 3 months,[2] and musculoskeletal conditions such as back pain were the most common Social Security Disability Insurance program qualifying diagnoses.[3] In 2010, US citizens who had low back pain consumed $34 billion in direct care costs[4] and lost an estimated 149 million days of work, costing businesses up to $200 billion in lost productivity.[5]

Mostchronic low back pain complaints in older adults can be managed effectively without surgery.[6-8] Spinal manipulation is an effective and inexpensive conservative treatment[9,10] that is recommended as a first-line intervention for certain spinal pain conditions[11,12] and that does not

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have the potential for harm that many widely used treatments do.[13-16] Yet, most patients with back pain do not use practitioners who provide spinal manipulation services.[17-20] Doctors of chiropractic (DCs) are the most common providers of such services,[20-22] an estimated 4% to 14% of the US population uses such care in a given year over the past 3 decades.[18,20,22-30]

We wondered whether public perceptions of spinal manipulation providers might explain the limited use of spinal manipulation services. To gain better understanding of such perceptions, we evaluated data from a national Gallup survey of US adults conducted in the spring of 2015. The purpose of this evaluation was to compare characteristics, likelihood to use, and actual use of chiropractic care for survey respondents with positive and negative perceptions of DCs and chiropractic care.

Methods

Design, Conduct, and Content of the Survey

As previously described,[30] Palmer College of Chiropractic (Palmer) contracted with The Gallup Organization (Gallup) to conduct a survey of US adults aged 18 years and older on their perceptions of and experiences with DCs. Informed by in-depth stakeholder interviews that Gallup conducted with 15 chiropractic professionals, participants from both organizations developed a 26-item survey to elicit those perceptions and experiences. Survey items were pretested to ensure items could be well understood by different types of respondents.

To conduct the survey, Gallup randomly selected a sample of members from The Gallup Panel, a probability-based longitudinal, representative panel of more than 60 000 US adults whom Gallup has selected using a combination of random-digit-dial telephone interviews that cover landline and cellphone users and address-based sampling methods. Members of The Gallup Panel do not receive incentives for participation; their participation in any particular survey is voluntary. When becoming a member of The Gallup Panel, respondents are provided a packet of information discussing how results of the surveys will be used; included in that packet is the statement "results from Gallup research are featured in major news publications around the world and used to inform businesses, media, and government about Americans' opinions and preferences."

Between February 16 and May 6, 2015, 18 992 members of The Gallup Panel were invited to participate in the survey using e-mail invitations or mail surveys, according to the members' communications preference. A total of 5422 (28.7% response rate) members completed the survey using either a Web-based portal (95.1% of total completed surveys; 30.1% response rate) or mail-in survey (4.9% or total completed surveys; 14.8% response rate); there were no follow-up efforts to get mail respondents to complete the survey, but e-mail reminders were sent to Web respondents. As is typical in Gallup Panel surveys, the survey was designed so that respondents did not know that it was specifically about chiropractic until they were several questions into the survey; this is done to reduce nonresponse bias.

Once the survey was completed, Gallup provided Palmer with a data set that included coded responses to the survey questions and the following demographic information for each respondent: age, sex, educational level, annual income level, and employment status.

Classification of Respondents Into Analytic Groups

We sought to compare characteristics, likelihood to use a DC for back or neck pain, and actual experience using a DC for respondents who had positive and negative perceptions of DCs and chiropractic care. Toward that end, we used responses to survey questions to define analytic groups for comparison purposes.

The survey asked 5 questions of respondents that sought their perceptions on DCs and chiropractic. This series of 6 questions was preceded by the introduction: "Based on what you know, please indicate your level of agreement with each of the following statements." Using a 5-point Likert scale (strongly disagree, disagree, neutral, agree, or strongly agree), respondents were asked to answer 3 positively worded statements regarding their perceptions of DCs:

1. Chiropractors are effective at treating neck and back pain.
2. Most chiropractors have their patient's best interest in mind.
3. Most chiropractors are trustworthy.

Immediately after those questions, respondents were asked to answer 3 statements regarding their perception of chiropractic care, with these questions worded negatively.

1. Chiropractic care is expensive.
2. Chiropractic care requires too many visits.
3. Chiropractic care is dangerous.

Respondents could also respond that they "did not know," and a small proportion did not answer the questions.

Collapsing agree with strongly agree and disagree with strongly disagree and using the inverse for negatively worded questions, we used responses to these questions to generate 2 groups for comparison purposes: respondents who had positive perceptions and those who had negative perceptions of DCs or chiropractic care (Table 1).

Statistics

This was a descriptive study. We used SPSS version 23 (released 2013; IBM Corporation, Armonk, NY) to conduct all analyses. We analyzed categorical data using the χ^2 test

Table 1. *Use of Responses of Perception Questions to Generate 2 Groups for Comparison: Those Who Had Negative Perceptions of DCs or Chiropractic Care and Those Who Had Positive Perceptions of DCs or Chiropractic Care*

Categories for Comparison [a]			Negative Perceptions			Positive Perceptions			
Knowing What You Know, Please Indicate Your Level of Agreement With the Following Statements:			Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Do Not Know	Did Not Answer
Perceptions of DCs	DCs are effective at	n	238	395	1101	2071	1134	425	78
	treating neck and back pain	%	4.4%	7.3%	20.2%	38.1%	20.8%	7.8%	1.4%
	Most DCs have their	n	159	304	1038	1798	1617	441	85
	patient's best interests in mind	%	2.9%	5.6%	19.1%	33.0%	29.7%	8.1%	1.6%
	Most DCs are trustworthy	n	148	373	1489	1789	947	612	84
		%	2.7%	6.9%	27.4%	32.9%	17.4%	11.2%	1.5%
Perceptions of chiropractic care	Chiropractic care is expensive	n	677	1463	1401	628	104	1075	94
		%	12.4%	26.9%	25.7%	11.5%	1.9%	19.8%	1.7%
	Chiropractic care	n	868	1446	1322	565	172	988	81
	requires too many visits	%	16.0%	26.6%	24.3%	10.4%	3.2%	18.2%	1.5%
	Chiropractic care is dangerous	n	238	1027	1338	1286	886	588	79
		%	4.4%	18.9%	24.6%	23.6%	16.3%	10.8%	1.5%

DC, doctor of chiropractic.
[a] The question posed to study participants was: Knowing what you know, please indicate your level of agreement with the following statements.

and continuous data using analysis of variance. Although Gallup provided weights that could be used to generate national estimates, we did not use these weights because we analyzed subgroups for which national estimates would not necessarily be accurate.

Funding and Institutional Review

Palmer funded the study, and Palmer's Institutional Review Board found the study exempt from further review (X2015-7-22-M).

Results

Across all 6 questions examined, respondents were more likely to have positive than negative perceptions of DCs, whereas they were more likely to have negative than positive perceptions of chiropractic care (with the exception of their perception of the dangerousness of chiropractic care) (Table 1). Almost three-fourth of respondents indicated that they had a positive perception of DCs on at least 1 relevant question, and 39.4% had a positive perception of DCs on all 3 relevant questions (Table 2). Only 17.6% of respondents had at least 1 negative perception of DCs, and only 4.0% had a negative perception of DCs on all 3 relevant questions. On the other hand, less than one-half of respondents indicated that they had a positive perception of chiropractic care on at least 1 relevant question, whereas only 4.8% had a positive perception on all 3 relevant questions. Furthermore, substantially more respondents had a negative perception of chiropractic care: 62.6% indicated that they had a negative perception of chiropractic care on at least 1 relevant question, whereas 9.0% had a negative perception on all 3 questions.

Table 2. *Number of Survey Questions (of 6 Possible) for Which Survey Respondents Indicated That They Had a Positive or Negative Perception of DCs or Chiropractic Care*

		No. of Questions to Which Respondents Indicated They Had a…			
		0	1	2	3
Positive perception of DCs	n	1377	918	1003	2144
	%	25.3%	16.9%	18.4%	39.4%
Cumulative	%		16.9%	35.3%	74.7%
Negative perception of DCs	n	4486	510	231	215
	%	82.4%	9.4%	4.2%	4.0%
Cumulative	%		9.4%	13.6%	17.6%
Positive perception of chiropractic care	n	2925	1652	606	259
	%	53.7%	30.4%	11.1%	4.8%
Cumulative	%		30.4%	41.5%	46.3%
Negative perception of chiropractic care	n	2036	1581	1337	488
	%	37.4%	29.1%	24.6%	9.0%
Cumulative	%		29.1%	53.7%	62.7%

DC, doctor of chiropractic.

Table 3. *Comparison of Characteristics of Respondents Who Have Positive and Negative Perceptions of DCs*

		DCs Effectively Treat Back and Neck Pain		DCs Have Their Patients' Best Interests in Mind		DCs Are Trustworthy	
		Disagree (Negative) (633)	Agree (Positive) (3205)	Disagree (Negative) (463)	Agree (Positive) (3415)	Disagree (Negative) (521)	Agree (Positive) (2736)
Demographics	Age	45.7 [b]	47.2	45.7 [b]	47.6	44.6 [a]	50.1
	Male sex	63.0% [a]	50.3%	65.2% [a]	50.8%	58.9% [b]	51.9%
	White race	92.1%	88.7%	90.3%	89.8%	91.0%	90.1%
	Married	63.7%	62.7%	63.0%	62.8%	62.5% [a]	64.2%
	College educated	61.0%	56.1%	57.7%	57.3%	61.4% [b]	56.3%
	Income of $100 000 or more	36.8%	33.0%	35.8%	34.0%	37.5%	33.7%
Insurance coverage of chiropractic	Chiropractic is covered	29.5% [a]	42.6%	30.1% [a]	39.7%	28.2% [a]	43.5%
	Chiropractic is not covered	12.5%	14.6%	12.8%	14.0%	14.1%	14.6%
	I don't know whether chiropractic is covered	55.5%	39.2%	54.1%	43.0%	54.2%	38.7%
	Uninsured	2.5%	3.5%	3.0%	3.3%	3.5%	3.1%
Who would you see if you were experiencing neck or back pain and wanted to see a health care provider about it?	Medical doctor	73.0% [a]	43.0%	67.3% [a]	48.9%	70.1% [a]	45.5%
	Chiropractor	7.0%	40.0%	11.7%	34.0%	8.8%	37.9%
	Physical therapist	9.3%	5.1%	9.1%	5.7%	7.7%	5.2%
	Massage therapist	5.5%	7.8%	5.4%	7.5%	7.3%	7.5%
	Other or do not know	3.3%	4.1%	6.4%	4.1%	7.1%	3.9%
If you were experiencing neck or back pain, how likely would you be to see a chiropractor?	Not likely at all	66.0% [a]	10.3%	58.0% [a]	18.3%	53.8% [a]	15.6%
	Not very likely	26.5%	26.5%	26.5%	30.4%	29.5%	28.7%
	Somewhat likely	5.0%	45.7%	12.3%	36.8%	13.3%	39.4%
	Very likely	2.1%	15.0%	2.2%	12.2%	2.1%	14.3%
	Do not know	0.5%	2.5%	1.0%	2.4%	1.3%	2.1%

DC, doctor of chiropractic.

The type of perception (negative or positive) and the numbers are given in parentheses; percentages may not add to 100% due to rounding. For age, statistical analysis was conducted using the Student *t* test; for the other demographic variables, statistical analyses were conducted using the χ^2 test.

[a] $P < .001$.

[b] $P < .01$.

Respondents who had negative perceptions of DCs had similar demographics to those who had positive perceptions of DCs, with the exception that those with negative perceptions were more likely to be younger and male (Table 3). Those with negative perceptions of DCs were more likely not to know whether chiropractic care was covered by their insurance (and less likely to indicate that it is covered), much more likely to want to see a medical doctor first if they were experiencing neck or back pain, and much less frequently indicated that they would be likely see a DC for neck or back pain.

Respondents who had negative and positive perceptions of chiropractic care also had similar demographics, except for variable differences in age and sex, depending on the question (Table 4). As was the case with perceptions of DCs, those with negative perceptions of chiropractic care were more likely not to know whether chiropractic care was covered by their insurance (and less likely to know that it is covered). However, when compared to those with negative perceptions of DCs, those with negative perceptions of chiropractic care more frequently indicated that they wanted to see a chiropractor first if they were experiencing neck or back pain (except for those who perceived chiropractic as being dangerous). In addition, when compared to those with a negative perception of DCs, those with negative perceptions of chiropractic care more frequently indicated that they would be likely to use a DC for back or neck pain (again, with the exception of those who perceived chiropractic as being dangerous),

When considering the relationship between positive and negative perceptions of DCs or chiropractic care and actual use of a DC, some perceptual aspects appear to be more impactful than others (Fig 1). For instance, respondents with positive perceptions of chiropractic care had more commonly used DCs in the past than those who had positive perceptions of DCs. Here, respondents who perceived that chiropractic care does not require too many visits and is not too expensive reported recent DC use rates that were more than twice that reported by all survey respondents (top). When examining the relationship between negative perceptions and DC use, the perception that DCs are not effective at treating back or neck pain appears to have the greatest impact; here, respondents with negative perceptions had less than one-half the recent utilization rates of DCs of those reported by all survey respondents (bottom). Similarly, respondents who did not perceive DCs as trustworthy or able to keep their patients' best interests in mind and those who perceived chiropractic care as dangerous had much lower rates of use of DCs in the past year or past 5 years than did all survey respondents. However, for these 3 areas, negative perception did not

Table 4. *Comparison of Characteristics of Respondents Who Have Positive and Negative Perspectives of Chiropractic Care*

		Chiropractic Care Is Expensive		Chiropractic Care Requires Too Many Visits		Chiropractic Care Is Dangerous	
		Agree (Negative) (2140)	Disagree (Positive) (732)	Agree (Negative) (2314)	Disagree (Positive) (737)	Agree (Negative) (1265)	Disagree (Positive) (2172)
Demographics	Age	44.6 [a]	50.1	47.4	47.3	45.5 [a]	47.8
	Male sex	49.6% [b]	56.1%	52.6% [b]	46.8%	48.1% [a]	54.2%
	White race	88.7%	89.9%	89.6%	90.0%	90.0%	89.0%
	Married	59.8% [a]	68.5%	65.4%	61.1%	60.2%	64.3%
	College educated	55.7%	56.1%	56.1%	55.9%	59.4%	57.7%
	Income of $100 000 or more	30.1% [a]	37.2%	34.0%	30.8%	36.0%	33.6%
Insurance coverage of chiropractic	Chiropractic is covered	34.0% [a]	57.8%	38.6% [a]	51.2%	29.8% [a]	45.4%
	Chiropractic is not covered	18.0%	14.3%	14.6%	16.8%	11.7%	15.4%
	I don't know whether chiropractic is covered	44.1%	25.1%	43.6%	28.3%	55.1%	36.2%
	Uninsured	3.9%	2.7%	3.2%	3.7%	3.4%	3.1%
Who would you see if you were experiencing neck or back pain and wanted to see a health care provider about it?	Medical doctor	50.0% [a]	39.0%	57.6% [a]	29.4%	70.2% [a]	38.0%
	Chiropractor	29.0%	44.5%	22.8%	54.8%	9.1%	45.3%
	Physical therapist	6.9%	6.7%	6.5%	4.8%	8.5%	5.3%
	Massage therapist	8.8%	6.7%	8.3%	7.5%	8.1%	7.4%
	Other or do not know	5.3%	3.0%	5.7%	3.5%	4.1%	4.0%
If you were experiencing neck or back pain, how likely would you be to see a chiropractor?	Not likely at all	24.3% [a]	21.9%	27.9% [a]	13.8%	46.2% [a]	11.4%
	Not very likely	32.1%	27.3%	34.7%	17.1%	33.0%	24.6%
	Somewhat likely	32.4%	32.3%	29.0%	41.7%	16.6%	44.4%
	Very likely	9.6%	17.5%	7.0%	26.1%	3.4%	17.6%
	Do not know	1.7%	1.0%	1.4%	1.2%	0.8%	2.0%

The type of perception (negative or positive) and the numbers are given in parentheses; percentages may not add to 100% due to rounding. For age, statistical analysis was conducted using the Student *t* test; for the other demographic variables, statistical analyses were conducted using the χ^2 test.

[a] $P < .001$.

[b] $P < .01$.

have as strong a relationship with rates of DC use: those rates were the same as or slightly higher than those for all survey respondents.

Discussion

We used a large, nationally representative survey to examine the American public's perceptions of DCs and chiropractic care with the objective of comparing respondents who had positive and negative perceptions of DCs and chiropractic care. We found that more respondents had negative perceptions of chiropractic care than they did of DCs. Those with negative perceptions of DCs tended to be male and younger than those with positive perceptions. Positive perceptions of either DCs or chiropractic care were associated with a higher likelihood of preferring to see a DC for treatment of back or neck pain, being likely to seek care from a DC for such treatment, and having seen a DC for care, particularly in the recent past. However, negative perceptions of DCs seemingly had a higher negative impact on the likeliness of using and actual experience using a DC.

Our findings suggest that positive perceptions of chiropractic care have a greater positive influence on DC utilization rates than do positive perceptions of DCs; conversely, negative perceptions of DCs may have a more dramatic negative impact on their use than do negative perceptions of chiropractic care. The fact that respondents with a negative perception DCs' trustworthiness or ability to have their patients' best interests in mind reported relatively high lifetime DC use rates suggests that these individuals may have had negative personal experiences with a DC. Although negative perceptions of chiropractic care were much more common than those of DCs, these perceptions are not seemingly related to actual utilization of DCs. However, marketing efforts targeted toward improving perceptions of the effectiveness, trustworthiness, and fiduciary nature of chiropractors and the safety of chiropractic care might be effective at increasing the utilization of chiropractic care.

Application of Study Findings

Our findings suggest that efforts to address negative perceptions, particularly of the effectiveness and safety of chiropractic care, may increase chiropractic care utilization rates. First, efforts to educate the public with results of rigorous analyses that support the effectiveness and safety of chiropractic care are warranted. Such efforts might contrast the safety of chiropractic care with some of the potential consequences of alternative methods of treating back pain, including surgical sequelae and opioid or

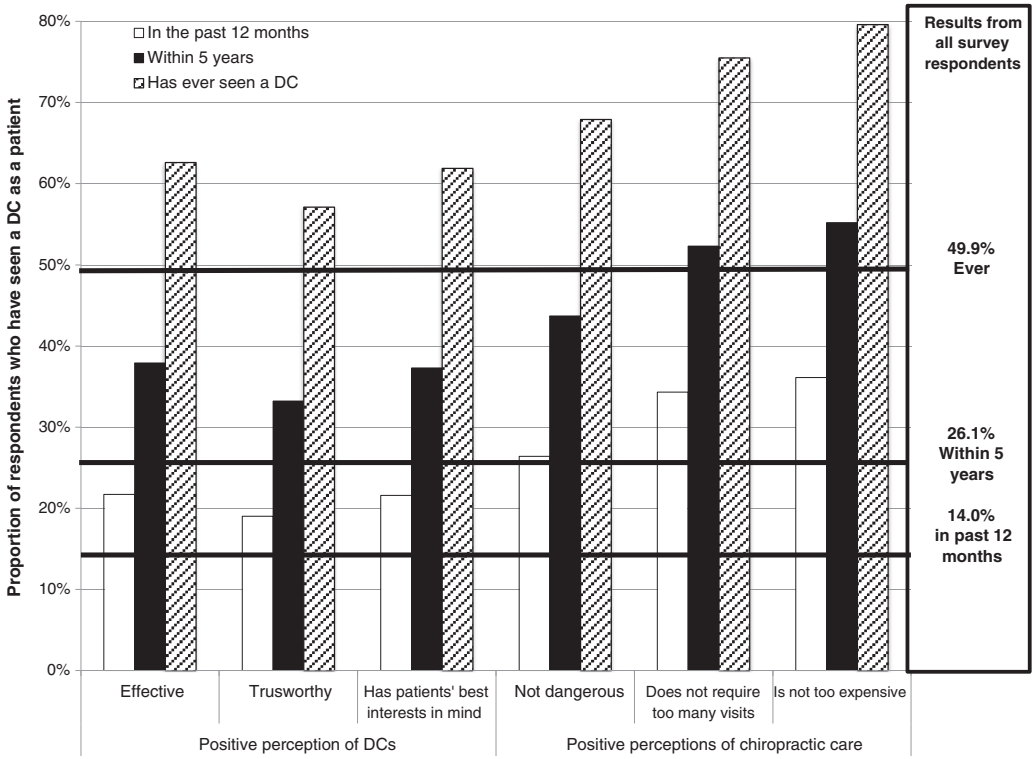

Fig 1. *The association between positive (top) and negative (bottom) perceptions of DCs and chiropractic care on seeing a DC as a patient (P < .001). Results from all survey respondents are provided on the right as a benchmark. DC, doctor of chiropractic.*

benzodiazepine addiction. Second, framing DCs as primary spine care practitioners—and establishing such a role for them in integrated clinical settings—may help consumers become more receptive toward their use. Finally, follow-up surveys of public perceptions of chiropractic care and DCs may uncover distorted beliefs behind negative perceptions that could be directly addressed through targeted marketing campaigns.

Limitations and Strengths

Our study has several limitations. First, results are from an anonymous survey; to the degree that respondents did not answer questions accurately, our results are inaccurate. Second, the survey's response rate was 29%; it is possible that respondents who were either interested in chiropractic care or had strong views on chiropractic care services were more likely to answer the survey. However, survey respondents were not aware that the survey was about chiropractic care until they were several questions into the survey, reducing such bias. As we were not able to compare the demographics (or key variables, such as experience using a DC) of our sample to those of nonrespondents, the possibility of selection bias cannot be eliminated; in part, such bias may explain the high rate of utilization that we found. However, results were validated on 2 separate nationally representative studies that were not focused on chiropractic care. Third, our study was a cross-sectional, retrospective survey: our findings are associative, not causative. Longitudinal analyses that repeat measures over time are required to make causative claims.

Finally, our findings may be influenced by the fact that how questions are worded can influence respondents' answers.[31] In our study, questions exploring the perceptions of DCs were positively worded, whereas those exploring the perceptions of chiropractic care were negatively worded. A study comparing 2 government surveys found that negatively worded questions were associated with inconsistent responses and a higher frequency of "do not know" responses.[32] We also found higher rates of "do not know" responses for questions that were negatively worded (Table 1), suggesting the possibility that respondents were confused by these questions and might have answered them differently had they been worded positively. Follow-up surveys might randomly distribute 2 survey versions that alternate positive and negative wording to reduce any impact of question working on perceptions of DCs and chiropractic care.

Despite these limitations, our study's strength rests in the fact that results are drawn from a large, national survey that was representative of US adults and was conducted by a renowned, highly skilled survey research firm. Future studies should include efforts to determine whether particular interventions designed to change perceptions of DCs or of chiropractic care or increase the use of DCs actually work. In addition, analyses of future surveys would determine whether positive and negative perceptions are changing over time and whether positive or negative wording of survey questions influences results.

Conclusion

In conclusion, our findings suggest that US adults generally perceive DCs in a positive manner, but that a high proportion has negative perceptions of chiropractic care, particularly the costs and number of visits required by such care.

Funding Sources and Conflicts of Interest

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

Contributorship Information

Concept development (provided idea for the research): W.B.W., C.M.G., W.C.M., D.M.M.
Design (planned the methods to generate the results): W.B.W., C.M.G., W.C.M., D.M.M.
Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): C.M.G., W.C.M., D.M.M.
Data collection/processing (responsible for experiments, patient management, organization, or reporting data): C.M.G., W.C.M., D.M.M.
Analysis/interpretation (responsible for statistical analysis, evaluation, and presentation of the results): W.B.W.
Literature search (performed the literature search): W.B.W.
Writing (responsible for writing a substantive part of the manuscript): W.B.W.
Critical review (revised manuscript for intellectual content, this does not relate to spelling and grammar checking): C.M.G., W.C.M., D.M.M.

Practical Applications

- We used a nationally representative survey to compare characteristics and use of survey respondents with positive and negative perceptions of DCs and chiropractic care.
- Positive perceptions of DCs were more common than those for chiropractic care.
- Respondents with negative perceptions of DCs or chiropractic care were less likely to have ever seen a DC as a patient.
- Positive perceptions of chiropractic care and negative perceptions of DCs appear to have greater impact on DC utilization rates than their converses.
- US adults generally perceive DCs in a positive manner, but a relatively high proportion have negative perceptions of chiropractic care, particularly the costs and number of visits required by such care.

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