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Cross-Sectional Survey of Opinions, Professional Changes, and Personal Hardships of COVID-19 on Chiropractors in the United States

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ABSTRACT

Objective: The purpose of this study was to assess self-reported data from a sample of U.S. doctors of chiropractic during the COVID-19 pandemic about levels of psychological stress and beliefs of the association between chiropractic spinal manipulation and the immune system.

Methods: Chiropractors in the United States were invited via social media and e-mail to complete a survey about chiropractic and COVID-19. The survey collected demographic information, office protocols, changes made during the COVID-19 pandemic, chiropractic profession opinions, information related to stress, and personal beliefs from April 19 to May 3 of 2020. Data were analyzed using descriptive statistics.

Results: Of approximately 77 000 U.S.-licensed chiropractors, 750 responded. Of this sample, 51.2% reported moderate and 30.4% reported severe levels of psychological stress. The primary stressors were financial and business concerns. There was a mixed response regarding beliefs if there was evidence to support a connection between spinal manipulation and the immune system. A majority (76.1%) responded that there should be no advertising for immune-boosting effects of spinal manipulation during the pandemic. A minority (18.3%) reported adding use of telehealth to deliver their services.

Conclusion: A majority of chiropractors included in this survey reported that the COVID-19 pandemic caused them psychological stress. More than half of the respondents reported moderate stress, with the second highest number of respondents reporting severe stress. Subgroup differences were noted in stress levels and causes, as well as pandemic-related practice changes. A dichotomy was noted between beliefs and recommended actions about effects on the immune system, which may represent that providers are aware of current evidence and considering association recommendations. (*J Manipulative Physiol Ther* 2022;45:127-136)

Key Indexing Terms: *Chiropractic; COVID-19; Professional Practice; Stress, Psychological*

INTRODUCTION

The first case of COVID-19 in the United States was confirmed in January 2020.¹ By May 12, 2020, there were more than 1.3 mill confirmed cases in the United States,

along with more than 80 000 deaths. As of December 2021, the total death count was higher than 805 000 and rising.²

Although the federal government offered guidance to limit spread of infections,³ governors of individual states were directed to make their own decisions regarding their response.⁴ This led to heterogeneous responses across the United States with many, but not all, states implementing stay-at-home orders.⁵ These orders have had profound economic effects, where even the health care sector has suffered. This sector of the U.S. economy has seen an 18% drop in health care spending, with multiple health systems reporting declines of 50% or greater in total revenue.⁶

The pandemic's impact on American chiropractors' practices and perceptions is unknown. Occupational stress had already been a major problem across health care in general and notably within the chiropractic profession.⁷ Stress during the pandemic could be a result of any number of factors. The authors hypothesized that mental stress levels and the factors that contribute to stress could vary based

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on subgroup differences concerning their location, age, practice/employment role, chiropractic philosophical leaning, and belief in the influence of spinal manipulation on the immune system. Therefore, the purpose of this study was to assess self-reported data from a sample of U.S. doctors of chiropractic during the COVID-19 pandemic regarding how COVID has impacted practice, levels of psychological stress, causes of psychological stress, and beliefs if chiropractic spinal manipulation had an influence on the immune system.

METHODS

Ethics

This project was reviewed by the Parker University Institutional Review Board and determined as exempted from ethics review.

Survey Development

We created 28 questions that examined the impact of COVID-19 on chiropractors in practice. Before being finalized, the questions were discussed and altered among the group of authors. We established face validity by having colleagues look at the questions and having a survey expert review our questions. The survey was pretested by a group of 8 licensed chiropractors who examined the questions for double meanings, sexist language, and clarity. As a result, several questions were revised. The survey was administered online through *Airtable* (San Francisco, California) using an anonymous link. Data were automatically sent to password-secured accounts on *Airtable's* server, accessible only by the authors. This survey was developed following *The Checklist for Reporting Results of Internet E-Surveys (CHERRIES)*.⁸

The survey was advertised via social media and e-mail to large groups of doctors of chiropractic within the United States. The survey asked about COVID-19's effect on personal lifestyle, professional decision making, and general opinions of U.S. chiropractors depending on their individual style of practice. The questions included demographic information (7 questions), general professional practice style (6 questions), COVID-19 changes to practice and lifestyle (12 questions), and opinions related to the chiropractic profession regarding immunity and philosophy (3 questions). The survey instrument is found in [Appendix 1](#). The question formats included fill-in ($n = 5$), single-response questions ($n = 13$), or multiple-response questions ($n = 10$). Depending on the type of position held (administrator, educator, practitioner, etc.), some questions might be left unanswered. The survey was open for 2 weeks, from April 19 to May 3 of 2020. A disclaimer including the purpose of the survey and additional details was visible to all respondents at the beginning of the survey.

Participant Recruitment

Respondents were recruited through convenience sampling via survey links distributed digitally to multiple closed chiropractic Facebook groups and pages across the ideological spectrum of chiropractors. These Facebook communities spanned multiple regions within the United States and represented various practice styles within the chiropractic profession. The following Facebooks groups or pages received and posted the survey link: Aligned Chiropractors, All Natural Doctors, Amped Now, Awesome Chiropractors Around the Globe You & I Know, Chiropractic Equipment Sell/Trade, Chiropractic Forward, Chiropractic Garage Sale: Buy and Sell, Chiropractic Mentor Members, Chiropractic, EBCN Diagnostic Imaging, Evidence Based Chiropractic Network, Foundation for Chiropractic Progress, Florida Female Chiropractors, Forward Rehab, Forward Thinking Chiropractic Alliance, Forward Thinking Women Chiropractors, Hospital Based Chiropractic, House Call Chiropractors' Forum, International Chiropractors' Association, Michigan Chiropractic Connection, Modern Chiropractic Marketing Group, NextGen ACA, and Palmer 031, 173, and 154 Groups. After seeing the survey online, 3 state associations (Michigan, Virginia, Washington) reached out to us to ask permission to circulate it to their members. Links to the survey were also disclosed on the personal Facebook profile pages of the authors, and snowball sampling occurred as respondents let others know about the survey.

Analytic Methodology

Questions were analyzed using descriptive statistics analyzed in *Airtable*, *Google Sheets* (Mountain View, California), or *Microsoft Excel* (Redmond, Washington) (counts, percentages, means, and standard deviation).

Reporting

Reporting follows the format and checklist for cross-sectional studies developed by the STROBE (STREngthening the reporting of OBServational studies in Epidemiology initiative).⁹

RESULTS

We obtained 750 responses. Graduates from all 18 U.S. chiropractic schools completed the survey. Participants licensed in 50 states took part in the survey; however, no chiropractors practicing in Delaware or Alabama completed the survey. The highest number of respondents practiced in the Midwest ([Table 1](#)).

Table 1. *Geographic Distribution of Respondents*

Region	States	Entries N = 750	%
New England	CT, ME, MA, NH, RI, VT	48	6.4
Mid-Atlantic	DE, MD, NJ, NY, PA, DC	88	11.7
South	AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV	106	14.1
Midwest	IL, IN, IA, KS, MI, MN, MO, NE, ND, OH, SD, WI	262	34.9
Southwest	AZ, NM, OK, TX	79	10.5
West	AK, CO, CA, HA, ID, MT, NV, OR, UT, WA, WY	163	21.7
Unanswered		29	3.9
Unselected states: Delaware, Alabama			

Some respondents selected multiple entries.

Demographics

The average age of participants was 41 (standard deviation = 12) with a range of 23 to 81. We divided respondents into age groups on the basis of generational categories: Silent Generation (born 1928–1945) age 75 to 95, $n = 1$, Baby Boomers (1946–1964) age 56 to 74, $n = 109$, Gen X (1965–1980) age 40 to 55, $n = 234$, Millennials (1981–1996) age 24 to 39, $n = 399$, and Gen Z (1997–present) age 23 and younger, $n = 1$.¹⁰ Respondents were queried on their length of time in practice. The responses were distributed between less than 1 year in practice and more than 30 years, the most common response being 10 to 20 years in practice (Table 2).

Practice Setting

Chiropractors in a rural setting accounted for 18.5% of respondents, 26.3% were in a small urban setting, 22.0% in a large urban setting, and 32.4% in a suburban setting. Urbanicity tends to be somewhat subjective; therefore, population was also assessed. Those who practiced in locations with a population of 25 000 or less comprised 1.6% of the respondents, 21.1% practiced in cities with populations between 25 001 and 100 000 people, 30.8% reported serving cities with populations between 100 001 and 250 000, and 19.1% were based in cities with more than 250 000 people. The majority of respondents were located in areas with a population over 25 000, most commonly in an area with a population between 100 000 and 250 000. This

Table 2. *Average Years in Practice*

Average Years in Practice	Entries (N = 750)	%
Younger Than 1 Year	60	8
1-3 y	98	13.1
3-5 y	92	12.3
5-10 y	134	17.9
10-20 y	179	23.9
20-30 y	99	13.2
30+ y	86	11.5
Unanswered	2	0.3

question was unanswered by 27.5% of those who participated in this survey. State association membership was held by 59.3% of respondents, while only 48.0% reported membership in a national chiropractic association.

Practice Characteristics

Nearly half of respondents were sole owners of their practice (45.5%), while 19.9% were owners in a group practice, and another 19.1% were associates in a group practice. Other roles included administration (04.9%), hospital provider (03.3%), educator (03.1%), and Veterans Administration (VA)/Department of Defense (DoD) (03.2%). More than half (65.2%) of those who responded to this question cared for 100 or fewer patients per week. A minority (22.3%) cared for 101 to 200 patients per week, and 09.7% reported more than 200 patient visits per week. A few responses to this question were potential outliers as some individuals claimed to see between 1150 and 1500 patients per week; we were unable to interpret if this was mistakenly reported as a total for an entire practice instead of per provider, as indicated in the original question. When asked to classify their approach to chiropractic, 350 (46.7%) stated they were strongly evidence based, 112 (14.9%) somewhat evidence based, 221 (29.5%) both subluxation and evidence based, 12 (01.6%) somewhat subluxation based, and 48 (06.4%) strongly subluxation based.

Professional Affiliations

Almost half of respondents (48.0%) reported that they were members of a national professional organization. Of these, 87.6% reported being members of the American Chiropractic Association (ACA) and 12.4% were members of the International Chiropractic Association (ICA). There were 34.0% who reported that they were not associated with any organization.

Table 3. Overall Stress Levels of Respondents

Psychological Stress Level	Respondents (N = 750)	%
Low stress (0-3)	133	17.7
Moderate stress (4-7)	384	51.2
High stress (8-10)	228	30.4

Psychological Stress

There were 51.2% of respondents who reported their stress level as moderate (ranging from 4 to 7 on an 11-point scale), while approximately 17.7% experienced mild stress, and about 30.4% perceived their stress levels as high^{11,12} (Table 3). The mean stress level was 6.1 out of 10, while the mode was 8.0. This suggests a possible bimodal distribution of perceived psychological stress. The most common reported causes of stress were business/employment concerns and financial/economic worries.

The reasons selected for experiencing stress are included in Table 4. Chiropractors working for the Veterans Administration and DoD reported the lowest stress. Chiropractors working in a hospital setting followed with the second highest level of stress. Private practice owners reported greater stress than working associates (Table 5, Figure 1).

Beliefs Toward Spinal Manipulation and Immune Function

The survey asked respondents “Do you believe that chiropractic/spinal manipulation can benefit the immune

system?” Recent graduates (within 1 to 5 years in practice) were more likely to respond “No or No, but future evidence may reveal more insight.” Respondents in practice longer than 10 years were more likely to report their belief that spinal manipulation could improve immune function (Table 6). The most common response concerning the immune benefit of spinal manipulation (40.2%) was that spinal manipulation could benefit the immune system; however, respondents did not feel that there was enough evidence to support actual claims. This finding was present regardless of national professional organization affiliation.

When asked “Do you believe chiropractors should advertise immune-boosting effects of chiropractic/spinal manipulation during the pandemic?” most (76.1%) answered no, 12.8% responded yes, and 10.4% were unsure. Several respondents (0.7%) did not respond to this question. For those in agreement, all respondents were members of the ICA (6.1% of the sample). Of the ACA members, 19.9% did not agree that spinal manipulation can benefit the immune system at all. Of ACA members, there were 40.5% who reported a possible benefit to the immune system but agreed that current evidence is not sufficient to support claims (Table 7).

Practice Changes Due to COVID-19

Of those who reported that chiropractic spinal manipulation can benefit the immune system, the most common response was to remain fully open. Respondents in both groups who felt that “future evidence may reveal more

Table 4. Causes of Stress

Cause of Psychological Stress, as Listed in the Survey	Number of Respondents Selecting This Item (n = 750)	%
Financial/economic worries	507	67.6
Concern for patients unable to be seen	305	40.7
Political response to virus	294	39.2
Safety/health of family and friends	247	3.9
General public's failure to follow guidelines and recommendations	185	24.7
Worry about staff/coworkers	178	23.7
Personal safety/health	158	21.1
Social isolation	155	20.7
Global suffering	149	19.9
Family dynamic stress	136	18.1
Child education changes	131	17.5
Other health care providers' inability to follow guidelines and recommendations	129	17.2
Food/housing insecurity	45	6

Table 5. *Psychological Stress Level by Category of Work Role or Type of Practice*

Psychological Stress Level	Owner (sole)	Owner (group)	Associate	VA/DoD	Multidisciplinary	Hospital	Educator	Administrative Role
0 (n = 12)	4	1	2	1	1	2	1	0
1 (n = 19)	8	3	4	0	1	0	1	0
2 (n = 40)	23	3	4	5	3	1	1	1
3 (n = 62)	25	9	10	5	9	5	2	6
4 (n = 54)	16	8	16	3	7	5	2	1
5 (n = 107)	49	20	30	3	5	2	0	1
6 (n = 105)	44	25	22	1	8	1	1	7
7 (n = 118)	58	20	22	4	10	2	7	9
8 (n = 144)	65	33	23	2	20	3	7	8
9 (n = 44)	24	7	6	0	5	1	1	2
10 (n = 40)	21	10	3	0	5	2	0	2

Median Stress Level vs. Job Position

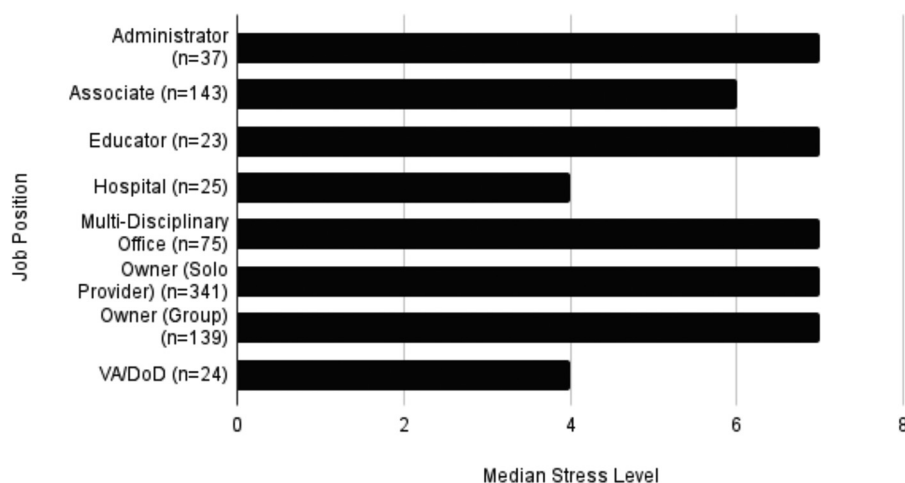


Fig 1. *Stress levels by job position.*

insight” were both more likely to remain open with limited hours. Those who reported that spinal manipulation does not benefit the immune system were more evenly spread across all levels of office closure. This group was also more likely to choose to be fully closed (Table 8).

Of the 178 respondents who answered, 90.4% reported an increase in sanitation and cleaning protocols, 68.7% reported limiting the number of people present in the building at any time, 44.4% reported limiting staff, 24.0% reported using telehealth services, 26.6% reported only using masks as personal protective equipment (PPE), and 35.8% reported using masks, gloves, etc. as PPE. Four people reported they made no

changes to their practice (0.7%). When polled about their knowledge on proper use of PPE, 75.7% of respondents reported feeling comfortable.

Telehealth Services and Chiropractic Approach

There were 18.3% of respondents reported that they offered telehealth services as a change to normal practice. The majority considered themselves to be “strongly evidence based” (68.6%) in their approach to the chiropractic profession. Of the 48 who described themselves as “strongly subluxation based,” only 12.5% reported using telehealth services. This result demonstrates a potential

Table 6. *Belief Concerning the Immune Benefit of Chiropractic by Years in Practice*

Do You Believe That Chiropractic/Spinal Manipulation Can Benefit the Immune System?	No	No, but Future Evidence May Reveal More Insight	Unsure	Yes, but Current Evidence Is Not Sufficient to Support Claims	Yes, It Has Been Proven by Research	No Answer
Younger Than 1 Year (n = 60)	12	18	1	18	9	2
1-3 y (n = 98)	17	37	4	29	10	1
3-5 y (n = 92)	20	27	3	35	5	2
5-10 y (n = 134)	22	28	7	52	24	1
10-20 y (n = 179)	20	27	8	76	47	1
20-30 y (n = 99)	8	12	5	47	25	2
30 y (n = 86)	14	15	1	48	8	0
Unknown years in practice (n = 2)	0	1	0	1	0	0
Total for each category	113	165	29	306	128	9
Percentages	15.1	22.0	3.9	40.8	17.1	1.2

Table 7. *Spinal Manipulation and Immune Function Beliefs for Only Those Respondents Stating They Were Affiliated with a Professional Organization*

Responses	ACA (n = 326)	ICA (n = 46)
Yes, it is proven by research.	23	23
Yes, but not enough evidence.	132	23
No, but future evidence may provide more insight.	97	0
No	65	0
Unsure	7	0

Nine respondents reported being members of both the ACA and ICA.

difference in practice style during COVID-19 based on chiropractic approach. Of the 137 chiropractors who chose to offer telehealth services during the pandemic, 82 (59.9%) were millennials born between 1981 and 1996. Gen X respondents were the second most likely subgroup to use telehealth services (28.5%). Baby boomers represented just 11.0% of those offering telehealth services.

DISCUSSION

According to the Practice Analysis of Chiropractic 2020 from the National Board of Chiropractic Examiners (NBCE), there were 77 000 practicing doctors of chiropractic in the United States.¹³ The average age of a U.S. chiropractor is 45, which was similar to the average age of

respondents of our survey, 41 years of age. Our results harmonize with those of the NBCE concerning urbanicity and geographic distribution, though our sample skewed toward early and midcareer providers while the NBCE had more mid and late career providers (Table 3).

Psychological stress has been documented in individuals and health care providers during the COVID-19 pandemic.¹⁴ High incidences of anxiety and depression in health care workers during the pandemic have been seen.¹⁵ Health care workers are at a significant risk of adverse mental health outcomes during the pandemic due to long hours, shortages of PPE, exhaustion, and isolation.¹⁶ The highest levels of stress in the surveyed group of respondents here were attributed to financial/economic and business/employment concerns. This may be related to the widespread closing of businesses during stay-at-home orders in the United States. In 1 study involving an outpatient specialty with minimal stress levels, perceived stress was shown to be elevated in all providers due to the COVID-19 pandemic and quarantine.¹⁷

Our sample of respondents reported experiencing psychological stress during the COVID-19 pandemic, with 30.4% of respondents reporting severe levels. It has been reported that the most severe symptoms of stress have been seen in 2.2% to 14.5% of health care workers in a variety of specialties, including physicians, nurses, and other hospital staff. Severity of mental health symptoms can be influenced by age, sex, occupation, specialization, type of activities performed, and proximity to COVID-19 patients.¹⁸

Table 8. *Changes in Practice by Chiropractors with Different Opinions on the Benefits of Spinal Manipulation Therapy (SMT) for Immunity*

Can SMT Benefit Immunity?	Fully Open	Limited Hours	Emergencies	Telehealth	Fully Closed	Temporarily Leave Practice	Permanently Leave Practice
No	17	26	22	15	21	10	2
No, but future evidence may reveal more insight	20	60	35	21	18	9	1
Unsure	10	8	8	0	2	1	0
Yes, but the current evidence is not sufficient to support claims	82	105	70	11	33	4	0
Yes, it has been proven by research	61	37	16	2	8	3	0
No answer	3	3	1	0	1	1	0

The highest psychological stress levels in the current study were seen in respondents who were responsible for employing others. Business owners and administrators showed the highest stress levels along with providers working in multidisciplinary practices. Interestingly, chiropractors working in hospitals and VA/DoD settings had the lowest stress. This is of particular note, since most of the existing research tracks stress in health care related to occupational exposure. Chiropractors working in large health care settings would likely have a higher risk of exposure. Conversely, providers in this category might therefore have less stress related to employment, business, or finances, which were the largest drivers of stress in our study. Chiropractors in the VA/DoD likely did not have to make practice decisions involving closure, safety of others, or PPE use, and this may account for the lower stress levels, we saw.

The highest percentage of those worried about business and employment were administrators. The percentage of chiropractors choosing financial/economic stress was similar in all positions except educators, those in hospital settings, and those in VA/DoD positions, all of whom reported less stress. This could be due to higher levels of job security compared with private practice. Chiropractors in the VA/DoD were more concerned about the national political response than any other group, likely due to the role that politics play for those working in executive branch government positions. This group had higher stress regarding food and housing. We do not have enough information to say why this is. Administrators, those in a hospital setting, and owners of a group practice reported the most concern for staff/coworkers. These subgroups work in organizations with generally higher numbers of staff/coworkers and may have direct responsibility involved with staffing decisions.

Concern regarding child education changes, patients being unable to be seen, family stress, failure of the

public to follow guidelines, and the safety of family and friends were relatively equal in response rate. Global suffering was reported as less of a concern for most groups, especially owners of a group practice. Chiropractors in a hospital setting and those in the VA/DoD reported the most concern for personal safety and health. This is to be expected due to the increased likelihood of being exposed to COVID-19 in a hospital setting¹⁹; however, another study did show that less access to PPE may skew risk toward providers in non-hospital-based practice.²⁰

Among the 750 chiropractors, 96 reported their belief that research supports spinal manipulation helping immune function, and 67 of these (69.8%) believed that chiropractors should advertise immune system benefits of spinal manipulation. This may be attributed to the evidence-practice gap²¹ found within health care or the commonly occurring conflation between correlation and causality.²² We suggest that these factors could explain why 75% of this subgroup described their approach to chiropractic as evidence based (when aggregating those who claimed to be *very evidence based*, *somewhat evidence based*, or *both evidence and subluxation based*). These beliefs persisted despite publications and guidance from national and international chiropractic organizations regarding the lack of evidence to support such claims.²³⁻²⁷ Some state chiropractic boards issued warnings against providing unsubstantiated information.²⁸ In the present study, members of the ICA were more likely to believe that chiropractors should advertise the benefits of spinal manipulation on the immune system. ACA members were more likely to not favor advertising. Respondents who were not members of national organizations and those who chose not to answer concerning affiliation were more likely to oppose advertising immune benefits of spinal manipulation.

The largest portion of responding doctors (41.3%) believed that SMT may benefit the immune system but that

currently there is insufficient evidence. When combined with the 17.3% of respondents who believe that research supported the effect of spinal manipulation on immune function, the result is a majority of responding chiropractors (58.6%) who believe that there may be a connection, whether or not there was enough evidence to support this. At the same time, a majority (76.1%) believed that there should be no advertising for immune-boosting effects during the pandemic. This dichotomy between beliefs and actions may mean that the providers are aware of current evidence and considering association recommendations.

A majority of those surveyed felt there was insufficient evidence to show an immune benefit from spinal manipulation; however, a percentage remained that believed that spinal manipulation had evidence to benefit immune function. A subgroup of respondents believed that chiropractors should be advertising immune system benefits during the pandemic. Participants who held the opinion that spinal manipulation had been proven to benefit the immune system were more likely to remain fully open during the COVID-19 pandemic. Those who believed spinal manipulation does not benefit the immune system were more likely to close their practice than any other group. Most chiropractic offices made changes to their daily office protocols to provide a safe office environment. Increasing overall sanitation and cleanliness was the most adopted change, while limiting the number of people present in the office at a single time was the second most frequent accommodation.

These findings provide new information on the influence that the COVID-19 pandemic has had on a sample of U.S. chiropractors and how they changed their practices in response. In addition, these findings provide new information on the levels of psychological stress and the most reported sources of stress during the pandemic. Differences in subgroups based on employment type, organizational membership, and philosophical leaning could provide meaningful insight into the best ways to support chiropractors and to influence pandemic response among U.S. chiropractors.

Limitations

Limitations of this study included the low response rate; thus, due to the small sample, the findings may not accurately represent the population of U.S. chiropractors. Because we used social media marketing for the survey, we could not determine how many people our invitation reached. Our survey platform was Airtable, which did not allow us to limit the number of entries a participant may provide since the survey was not administered to specific e-mail addresses or IP addresses. We were not able to confirm if the same person took the survey multiple times. We could not

account for overlap, as members of one group may have been members of another similar-minded group (or potentially one that is a diametric opposite of other groups). All questions did not require a mandatory response. Respondents were able to answer questions that related to them and ignore those that did not or those they felt uncomfortable answering due to personal or professional opinion. That decision could impact the results. In addition, a few of the questions had a higher nonresponse rate, for reasons that are not clear to us. The study was also at risk for response bias. In that, those who had access to the Internet survey invitation were more likely to respond to the survey. Practitioners who avoid taking Internet surveys were likely not included in this study, thereby biasing the study findings.

Our study was shared via social media, e-mail, direct messages, and through several chiropractic organizations. Because of this lack of complete inclusion, there is a potential degree of coverage error. We cannot say all U.S. chiropractors were made aware of the survey. An added limitation of sampling bias is that the majority of participants were either Millennials or members of Gen X (84.4%), which means that earlier generations were not included proportionally. This may be due to the fact that this survey was promoted via digital social media platforms.

A greater percentage of respondents were members of the ACA compared with the ICA, which may be because the ACA has more members than the ICA. We could not obtain reliable member counts for either organization to determine whether the distribution in our sample was representative.

Another limitation is that the information collected from this study came from self-reported data. This form of data requires researchers to assume participants are being honest in their responses. As well, responses to the survey at 1 time may not necessarily be the same at another time. Thus, this study is limited to the time frame in which we collected the data.

CONCLUSION

The sample U.S. chiropractors in this study reported that the COVID-19 pandemic led to changes in their practices and psychological stress. The most reported causes of psychological stress were from business, employment, financial, and economic sources. More than half of the respondents reported moderate stress, with the second highest number of respondents reporting severe stress. Most respondents reported that their practices were not fully open, and a minority reported providing telehealth services.

When combining those who did not believe there was a benefit with those who believed there was a benefit but recognized there was insufficient evidence created a majority compared with some who reported that spinal manipulation does benefit immune function. At the same time, a majority of respondents believed that chiropractors should not advertise the immune benefits from spinal manipulative therapy. Participants who held the opinion that spinal manipulation benefits the immune system were most likely to remain fully open during the COVID-19 pandemic. Most chiropractic offices changed their daily office protocols to provide a safe office environment.

Differences in practice setting, employment status, and practice style showed different levels and causes of psychological stress. These subgroups also had differing responses to the pandemic in the form of practice changes including remaining open or closing.

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SUPPLEMENTARY MATERIALS

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

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Supervision (provided oversight, responsible for organization and implementation, writing of the manuscript): S.N., D.L.

Data collection/processing (responsible for experiments, patient management, organization, or reporting data): S.N., R.D., A.M., D.L.

Analysis/interpretation (responsible for statistical analysis, evaluation, and presentation of the results): S.N., R.D., A.M., D.L.

Literature search (performed the literature search): S.N., R.D., A.M., D.L.

Writing (responsible for writing a substantive part of the manuscript): S.N., R.D., A.M., D.L.

Critical review (revised manuscript for intellectual content, unrelated to spelling and grammar checking): S.N., R.D., A.M., D.L.

Practical Applications

- This study examined the self-reported stress levels and sources of stress among a sample of chiropractors in the United States during the COVID-19 pandemic.
- This study examined the opinions and beliefs of chiropractors in the United States about the support for claims of immune-boosting effects of spinal manipulation.
- More than half of the respondents reported moderate stress, with the second highest number of respondents reporting severe stress.

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