Journal of Integrative Medicine 22 (2024) 379–384

Contents lists available at ScienceDirect

Journal of Integrative Medicine

journal homepage: www.jcimjournal.com/jim
www.journals.elsevier.com/journal-of-integrative-medicine

Global Views

Distribution of licensed acupuncturists and educational institutions in the United States at the start of 2023, during the late stage of the COVID-19 pandemic

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ARTICLE INFO

Article history:
Received 28 December 2023
Accepted 16 May 2024
Available online 18 June 2024

Keywords:
Acupuncturist
Acupuncture educational institution
Distribution
Density
Oriental medicine
United States

ABSTRACT

This study was conducted to identify the number and density of active licensed acupuncturists (LAcs), as well as the number of accredited schools in acupuncture and Oriental medicine (AOM), as of January 1, 2023, in the United States (U.S.). The number of active LAcs as of January 1, 2023 was 34,524, potentially 33,364 after removing license duplication in multiple states, among which the largest three states were California (with 7317 LAcs [21.19% of the total]), New York (5024 [14.55%]) and Florida (2644 [7.66%]). The total number of LAcs decreased by 8.87% from 2018, and fell short of our projected number of LAcs in 2023 by 9037, or 20.75%. The overall LAc density in the U.S.—measured as the number of LAcs per 100,000 population—was 10.36, less than in 2018. There were 56 active, accredited AOM schools which offered a total of 147 programs (121 at the level necessary for licensing [entry-level], 12 for an advanced practicing degree [advanced-level], and 14 for certifications). Broken down further, offerings included 50 master's degrees in acupuncture, 40 master's degrees in Oriental medicine, 31 entry-level doctorate degrees (10 in acupuncture and 21 in acupuncture plus Chinese herbal medicine), and 12 advanced-level doctorate degrees in AOM. The certification programs included one in East-Asian Medical Bodywork and 13 in CHM. Among these schools in 2023, institutions in the West and East Coast states comprised 67.86% (decreased from 77.42% in 2018) of the national total. California, Florida and Illinois represented 39.29%. There were 48 jurisdictions with acupuncture practice laws in place. The data suggests that the acupuncture profession in the U.S. has been significantly impacted during the coronavirus disease 2019 pandemic.

Please cite this article as: Fan AY, He DG, Sangraula A, Alemi SF, Matecki A. Distribution of licensed acupuncturists and educational institutions in the United States at the start of 2023, during the late stage of the COVID-19 pandemic. *J Integr Med*. 2024; 22(4): 379–384.

1. Introduction

Acupuncture, as a nonpharmacological medical therapy, has been widely used in at least 113 countries of the 170 member countries of the World Health Organization, based on a report from 2019 [1]. Its practice had spread to 196 countries and regions by 2022, being increasingly researched, recognized and welcomed, based on the information from the World Federation Of Acupuncture-Moxibustion Societies [2,3]. In the United States (U.S.), acupuncture is commonly referred to as acupuncture and Oriental medicine (AOM) and is placed in the field of complementary and integrative medicine [4]. The data from the U.S. National

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https://doi.org/10.1016/j.joim.2024.06.002

Health Interview Survey (NHIS) showed a 50% increase in the number of acupuncture users between 2002 and 2012. In 2012, the most recent year for which detail statistics are available, 6.4% (15.38 million) of U.S. adults reported they had used acupuncture, and 1.7% (4.08 million) reported they had used it as part of their healthcare in the past 12 months [4,5]. In 2022, the NHIS found that 2.2% (5.74 million) of U.S. adults had used it for pain management in the past 12 months [6].

U.S. health policy has also integrated acupuncture into certain strategies. For instance, the opioid epidemic in the U.S. has become a national crisis [7], and between 1999 and 2021, nearly 645,000 people died from an overdose involving an opioid, including prescription and illicit drugs [8]. Due to the severity of the epidemic, a White House panel urged the U.S. President at the time to declare the opioid crisis a national emergency [9]. In 2019, then-President Trump signed the "SUPPORT for Patients and Communities Act" (Bill H.R. 6) into law which includes acupuncture therapy as a key strategy [9,10].

While acupuncture is increasingly used as an integrative therapy by patients with various diseases and disorders, the number of actual acupuncture providers, or AOM practitioners, in the U.S., along with statistics on the number of accredited schools and programs from which these practitioners emerge in each state, is of increasing interest by the public. The U.S. Bureau of Labor Statistics does provide an annual rough estimate [11]. The authors conducted surveys, reviewed published AOM workforce information, and reviewed analyses of the acupuncture workforce in recent years [2,10,12,13]. In prior papers, we reported that in early 2015 there were 34,481 active licensed acupuncturists (LAcs) and that accredited acupuncture educational institutions in total offered 62 master's degrees and 10 doctorate degrees in the U.S. [12]. At the start of 2018, the numbers were 37,886 LAcs, 85 master's degree programs, and 15 doctorate degree programs [13]. The census of healthcare providers has been an important academic topic in the U.S. [6,14–17]; however, there is no U.S. federal government report in this field, therefore, our routine performance of this analysis is necessary.

Our current investigation aimed to determine as accurately as possible the number and density of LAcs, as well as the number of accredited programs and schools in each state at the start of 2023, during the late stage of the coronavirus disease 2019 (COVID-19) pandemic. U.S. Department of Health and Human Services announced that the federal Public Health Emergency for COVID-19 expired on May 11, 2023 [18].

2. Materials and methods

2.1. Inclusion criteria

We researched the number of active LAcs in the states with acupuncture licensing laws as of January 1, 2023.

There are two major accreditation agencies in the AOM field in the U.S.: the Accreditation Commission for Acupuncture and Herbal Medicine (ACAHM), which was previously called the Accreditation Commission for Acupuncture and Oriental Medicine, and operates nationwide; and the California Acupuncture Board (CAB), which is focused on California and some surrounding states. The number of schools accredited by the ACAHM was much greater than that accredited by the CAB [12]. The number of education programs for AOM included active, accredited programs providing master's and doctorate degrees, as reported by ACAHM [19] which the U.S. Department of Education accredits [20] as of January 1, 2023.

2.2. Exclusion criteria

Our investigation excluded inactive acupuncturists who have retired, moved, or have not currently renewed their license with their state boards. Exclusions were based upon state records showing a given practitioner was retired, had not currently renewed the license with their state boards, or was in a state without acupuncture (or Oriental/Eastern/Chinese medicine) licensing laws. Our study also excluded medical doctors, or other healthcare providers (chiropractors, physical therapists, etc.) who sometimes practice acupuncture under different modality names such as "medical acupuncture," "battlefield acupuncture," "detox acupuncture," or "dry needling" [10,21,22].

Our investigation excluded the schools of acupuncture or Oriental medicine that are no longer accredited by ACAHM before January 1, 2023.

2.3. Methods

2.3.1. Number and density of LAcs

We followed the methods described in our former studies [12,13]. The available public records accessible from the Internet were searched to determine the number of LAcs in each state, district or territory. Sources included the appropriate entity that governs acupuncturists in each region. Governing entities that regulate the practice of acupuncture vary widely among regions [13,23]. Sixteen states have an acupuncture licensing board. Twenty-two states place acupuncture regulation under a medical board. Seven states regulate acupuncture under non-medical agencies such as the Office of Professional Regulation (Vermont) or the Department of Public Health (Connecticut). In 8 states (Mississippi, Maine, Iowa, Delaware, Texas, Louisiana, Missouri and Kentucky) acupuncture practice laws and regulations are embedded in statutes of other professions, usually medicine or chiropractic.

The data from internet-accessible resources were verified by calling the corresponding governing board for each U.S. state, as well as the District of Columbia, Guam, Puerto Rico and the Virgin Islands. Discrepancies were resolved by board staff who maintain the acupuncture licensing databases for each state, district or territory. We included data validated by department staff. If there was online information available, and a clerk could not be reached, then the total from the online sources was used. If there was no online information available, and the clerks could be reached, the information from the clerks provided was used. In cases where information was unavailable online, and a clerk could not be reached, we reported the information as "not available." The density of acupuncturists per 100,000 population was calculated dividing the number of acupuncturists in a state district or territory by that region's population according to the U.S. Census Bureau of State Population 2022 [24]. We did not check our calculations by verifying the number of active LAcs in more than one state, estimating the percentage of licensees in each race category, and looking at the practitioner sex data in each state whenever possible, due to that some states could not provide such information at our data collecting period.

To validate our findings regarding the total number of LAcs from each state, we searched PubMed.gov (MEDLINE), Google Scholar, Google and Bing, using the following search words: "acupuncturist," "acupuncture practitioner," "licensed acupuncturist," "number," "statistics," and "U.S."

2.3.2. Comparing the number of total LAcs in 2018 and the projected number in 2023

The number of total LAcs at the start of 2023 was compared with the number in 2018 [13], including the percentage change. The projected number of total LAcs at the start of 2023 was calculated using the average increase in LAcs between 2015 and 2018 [13]. Using the data from 2015 to 2018 [13] to estimate the annual change in the number of the LAcs may reflect more recent changes and may be more appropriate for making the projection; however, our 2015

study reported that the average increase in LAcs was 1266 each year from 1992 to 2015, based on 9 research datasets [12].

2.3.3. Number of schools or programs providing degrees in AOM

To identify AOM schools or programs, we searched the following terms on Google and Bing, except to find the accreditation agency (ACAHM): "acupuncture," "Oriental medicine," "acupuncture" and "Oriental medicine," "complementary and alternative medicine," "integrative medicine," paired with "school," "program" and "U.S." Only accredited schools are included.

2.3.4. The investigation timing

Data used in this study were initially collected in February 2023 and verified in April 2023.

3. Results

3.1. The number and density of acupuncturists in each state and district

Fifty states had online information about the number of LAcs. Board clerks in charge of acupuncture licensing in three states (Illinois, Mississippi and North Dakota) and the territories of Guam, Puerto Rico and the Virgin Islands could not be reached by phone. For those three states and territories, unverified data were used. For all other states or territories, the number provided by the clerks was used for the study, regardless of whether online data were available from the governing body. Every state had some form of data available.

There was a total of 34,524 active LAcs in 47 states and Washington, D.C. at the start of 2023 (Table 1). This total excluded practitioners in regions without acupuncture licensing laws, such as the states of Alabama, Oklahoma and South Dakota, and the territories of Guam, Puerto Rico and the Virgin Islands. There were no states that enacted their own acupuncture or Oriental medicine licensing law between 2018 and 2023. The 10 states with the largest number of acupuncturists were, in decreasing order, California, New York, Florida, Colorado, Oregon, Washington, Maryland, New Jersey, Texas and Massachusetts. The number of practitioners was greater than 1000 for each of these states, and totaled 24,420, comprising 70.73% of all active LAcs in the U.S. Among them, greatest number of acupuncturists were practicing in California with 7317 (21.19% of the U.S. total), New York with 5024 (14.55%) and Florida with 2644 (7.66%). These three states accounted for 43.40% of the overall total. California especially saw a decrease of 4818 LAcs (12,135 in 2018), which is roughly 39.70%.

3.2. Comparison of LAcs between 2023 and 2018

Compared to the total in 2018 (37,886), the total number of active LAcs decreased by 3362 (8.87%) as of 2023. From 2015 to 2018, the number of LAcs increased by an average of 1135 per year [13]. According to that annual growth trend, the projected total number of LAcs in 2023 should have been 43,561. However, the actual number was 34,524, which fell short of the projection by 9037 (20.75%).

3.3. Density of LAcs in each state or district

As shown in Table 1, there were 21 states with acupuncturist density greater than 10 per 100,000 population, and Hawaii, New Mexico, Oregon and Vermont each had acupuncturist density greater than 30 per 100,000.

The average density of LAcs in the U.S. was 10.36 per 100,000 population in 2023, based on the 2022 U.S. population estimate of 333,287,557 [24]. There was a slight decrease from the density of 11.63 in 2018 [13].

3.4. Schools or programs of AOM

At the start of 2023, there were 56 ACAHM-accredited AOM schools in the U.S, a 9.68% decrease compared to 62 schools in 2018 [13]. California ranked the first with 12 schools, Florida the second with 6 schools, and Illinois ranked the third with 4 schools. These three states accounted for 39.29% of the total number of AOM schools in the U.S. Four states (New York, Oregon, Texas and Washington) had three schools each, 6 states (Arizona, Colorado, Minnesota, New Jersey, North Carolina and Virginia) had two schools each, and 10 states (Connecticut, Georgia, Hawaii, Maryland, Massachusetts, Missouri, Nevada, Ohio, Pennsylvania and Wisconsin) had one school each. There were no accredited AOM schools in the other 27 states and the District of Columbia (Fig. 1). About half (51.78%) of the AOM schools are located in East Coast states and West Coast states.

There is a total of 147 ACAHM-accredited acupuncture-related educational programs in the U.S. Among them, 50 schools offer an entry-level master's degree in acupuncture (MAc), and 40 offer an entry-level master's degree in acupuncture and Chinese herbal medicine (MAcCHM, which was called "Oriental medicine"). In total, there are 90 programs at the master's degree level. Ten schools offer an entry-level doctorate degree in acupuncture (DAc), and 21 offer an entry-level doctorate degree in acupuncture and Chinese herbal medicine (DAcCHM). Entry level is a term that refers to the lowest level of a hierarchy for participating in a national acupuncture licensing examination. In addition, 12 schools offer an advanced practicing doctorate degree in AOM for the established LAcs who have already obtained an entry-level master's degree or its equivalent. In total, there are 43 programs at the doctorate level. Fourteen schools also offer certification programs. Among them, one offers a certificate in Asian medical bodywork, and 13 offer a certificate in Chinese herbal medicine.

4. Discussion and limitations

At the start of 2023, there were 34,524 active LAcs in the U.S. The three states with the greatest number of LAcs were California, New York and Florida, representing 43.40% of the nation's acupuncturists. These data are very close to our 2015 findings of 34,481 active LAcs in the U.S. [12]. However, the number of total LAcs at the start of 2023 had decreased by 8.87% from the 2018 total. When compared to a conservative projection of 43,561 LAcs in 2023, the actual total fell short by 9037. The COVID-19 pandemic might be the greatest possible contributing reason for this decrease as many experienced senior LAcs retired, much earlier than usual. As a comparison, the COVID-19 pandemic significantly impacted the nursing profession, especially in nurses with more than 25 years of experience and in managers and directors [25]. Eleven percent of the total nurses with such high experience indicated they had decided to leave their position, and 20% planned to leave but were undecided [25]. In a survey of pediatric anesthesia professionals, that included 72 institutions, 61% (43) of the institutions reported anesthesiologists leaving current practice and 53% (37) early retirement [26]. There are some differences between nurses, medical doctors and LAcs, the former two professions were "essential healthcare workers" during the COVID-19 pandemic in all states and the District of Columbia, while LAcs were only considered essential healthcare workers in a few states, such as in Virginia. Therefore, nurses and medical doctors might have more work stress during the pandemic and might get more left. It is

Table 1
Statistics of active acupuncturists in each state or district of the United States at the start of 2023.

Rank	State or location	Population[#]	Numbers of licensed acupuncturists	Density of licensed acupuncturists[##]
1	California	39,029,342	7317	18.75
2	New York	19,677,151	5024	25.53
3	Florida	22,244,823	2644	11.89
4	Colorado	5,839,926	1626	27.85
5	Oregon	4,240,137	1582	37.31
6	Washington	7,785,786	1569	20.15
7	Maryland	6,164,660	1228	19.92
8	New Jersey	9,261,699	1198	12.93
9	Texas	30,029,572	1179	3.93
10	Massachusetts	6,981,974	1053	15.08
11	New Mexico	2,113,344	850	40.22
12	Pennsylvania	12,972,008	831	6.41
13	Illinois	12,582,032	813	6.46
14	Hawaii	1,440,196	761	52.84
15	Arizona	7,359,197	658	8.94
16	Minnesota	5,717,184	652	11.40
17	North Carolina	10,698,973	629	5.88
18	Virginia	8,683,619	598	6.89
19	Connecticut	3,626,205	528	14.56
20	Ohio	11,756,058	312	2.65
21	Georgia	10,912,876	290	2.66
22	Maine	1,385,340	249	17.97
23	Michigan	10,034,113	249	2.48
24	Vermont	647,064	231	35.70
25	Tennessee	7,051,339	219	3.11
26	Utah	3,380,800	218	6.44
27	Idaho	1,939,033	183	9.44
28	Montana	1,122,867	179	15.94
29	Rhode Island	1,093,734	155	14.17
30	South Carolina	5,282,634	151	2.86
31	New Hampshire	1,395,231	146	10.46
32	Missouri	6,177,957	137	2.22
33	District of Columbia	671,803	133	19.80
34	Indiana	6,833,037	114	1.67
35	Nevada	3,177,772	108	3.40
36	Alaska	733,583	105	14.31
37	Kentucky	4,512,310	99	2.19
38	Louisiana	4,590,241	80	1.74
39	Kansas	2,937,150	73	2.49
40	Wyoming	581,381	64	11.01
41	Nebraska	1,967,923	58	2.95
42	Wisconsin	5,892,539	55	0.93
43	West Virginia	1,775,156	51	2.87
44	Iowa	3,200,517	43	1.34
45	Arkansas	3,045,637	39	1.28
46	North Dakota	779,261	16	2.05
47	Mississippi	2,940,057	14	0.48
48	Delaware	1,018,396	13	1.28
49	Alabama*	5,074,296		
50	Oklahoma*	4,019,800		
51	South Dakota*	909,824		
Total		333,287,557	34,524	10.36

* These states did not have acupuncture practice acts at the start of 2023; # the population did not include the U.S. territories; ## density is presented as the number per 100,000 population.

difficult to know whether declines in the numbers of practicing nurses, medical doctors and LAcs were similar at the start of 2023.

Based on the experiences of some of the current authors of this paper who are LAcs, many commercial insurance companies during the COVID-19 pandemic or even after that, could not reimburse acupuncture services timely and fairly, which drove many acupuncturists out of business. Even now, many insurance companies have continued to change and lower reimbursements for acupuncture services. The famous Johns Hopkins medical system, which had 9 employed 9 LAcs before COVID-19, currently employs only one. At the University of Maryland School of Medicine, which was the first public medical school to establish an integrative medicine research center with acupuncture clinics in the U.S., all three acupuncture clinics were closed during the COVID-19 pandemic period. The second reason is probably due to the impact of the large amount of non-acupuncture professionals who have entered the acupuncture market under terms such as "dry needling" or others, bypassing the acupuncture law with a much lower level of acupuncture education [21,22].

Among the decreasing numbers in acupuncture practitioners, California is the most significant. Compared with the data from 2018, LAcs in California dropped to 7317 from 12,135 (a 39.7% decrease). In addition to the two reasons mentioned above, another factor for this decrease in California could be that many California residents (including acupuncturists) are moving out to other states for different reasons [27,28], such as (1) a job-related move, including getting a new job, looking for work, or an easier commute in other states; (2) the high cost of living in California; (3) the COVID-19 pandemic allowing for new opportunities for people to work remotely; (4) policies of destination states and the political ideology of movers; and (5) the impacts of issues regarding crime and people experiencing homelessness.

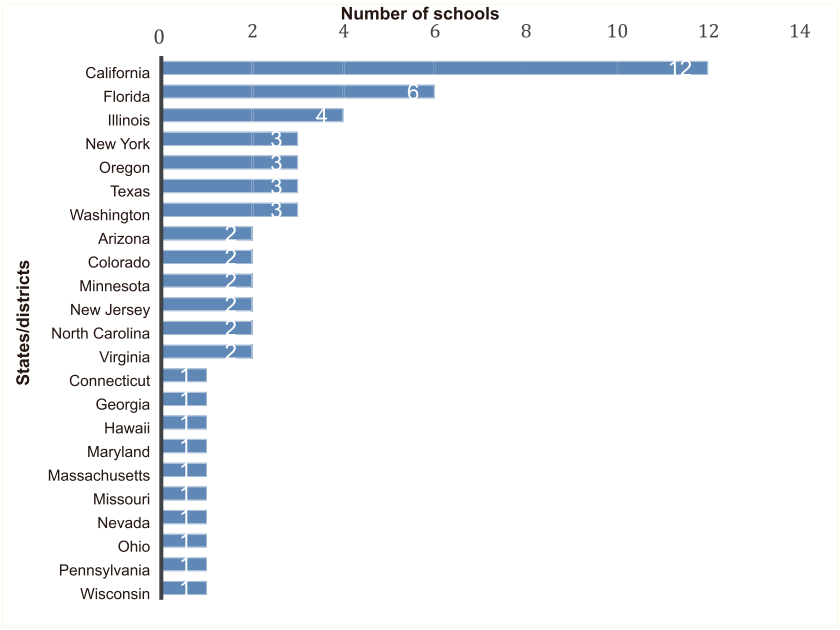

Fig. 1. The number of ACAHM-accredited acupuncture or Oriental medicine schools in each state or district of the United States at the start of 2023. ACAHM: Accreditation commission for acupuncture and herbal medicine.

In a recent newsletter released by the American Society of Acupuncturists, it is good to see that there has been a significant recovery in the number of LAcs [29], since U.S. Department of Health and Human Services announced that the federal Public Health Emergency for COVID-19 expired on May 11, 2023.

In the current study, we were not able to determine the number of acupuncturists who were licensed in several states. In our 2018 study, we found that in California 8.30% of practicing acupuncturists lived in another state, and as such, these providers might have an active license in another state. We also found that the National Certification Commission for Acupuncture and Oriental Medicine (NCCAOM) did a national survey in 2008, which showed that 6.30% of acupuncturists hold multiple state licenses [30]. If we consider 7.30% as the median rate of active LAcs who hold multiple state licenses, then the number of such LAcs should roughly be 1260. Therefore, we could get a potentially more accurate number of 33,264 active LAcs in the U.S. at the start of 2023.

NCCAOM national survey in 2008 [30] indicated that 61.7% of the LAcs practiced alone; 23.9% worked in a group setting, and 10.1% worked as an employee or contractor in a clinic, hospital or integrative setting. In a similar survey from 2017, it found that 34.3% of LAcs were "(solo-)independent practitioners," 40.8% were "owners or partners" (accounting for 75.1% of practitioners), 9.7% were "independent contractors," and 15.2% were "employees" [31]. Between 2008 and 2017 more LAcs began operating independent clinics, more were working as employees in other professionals' clinics and hospital settings, and fewer were working as contractors. Therefore, if there was no COVID-19, based on the percent composition of 2017 LAcs' practice or work setting, in 2023, there were 24,981 LAcs who own their independent acupuncture clinics (in solo-practitioner form, or as a company form as owner or partner) in the U.S., 5056 LAcs as an employee working in hospitals or large clinics or integrative settings, and 3227 LAcs as independent contractors working in either AOM or other form of healthcare clinics or hospitals. However, the COVID-19 pandemic changed not only the number of practicing LAcs but also LAcs' practice pattern. It caused a large percentage of LAcs to lay off from employment as mentioned above, and more LAcs from the latter two categories had to choose to open their clinics to practice. Therefore, in 2023, there were much more than 25,000 LAcs that had their clinics and fewer as employees and contractors.

The reasons for the decreasing of the number of AOM schools may be related to multiple issues, such as financial difficulty, shortage of student applications, students withdrawing, and employees leaving during the COVID-19 pandemic. The trend of school closings has continued since the COVID-19 pandemic started in late 2019 until now.

As discussed above, in early 2023 there were potential 33,264 active LAcs (removed the potential duplication) in the U.S.; multiplied by $95,760 per acupuncturist median gross income [2], the annual gross income for all U.S. LAcs was $3,185,360,640. Therefore, the total annual expenditure for patients seeking acupuncture treatment in the U.S. in 2023 is estimated to be almost $3.2 billion. However, this number might be used carefully, because the U.S. LAcs' median gross income also might be impacted by the COVID-19 pandemic.

5. Conclusion

The number of active LAcs practicing in the U.S. as of January 1, 2023 were 34,524, which was 8.87% less than in 2018. In 2023 there were 56 accredited AOM schools (decreased by 9.68%, compared to 2018) which altogether offered 147 programs. California, New York and Florida are the "big three" in the number of active LAcs; besides, California, Florida and Illinois are the "big three" in the number of AOM schools. More than 25,000 LAcs had their clinics, and the total annual expenditure for patients seeking acupuncture treatment in the U.S. in 2023 is estimated to be almost $3.2 billion. The data suggests that the acupuncture profession in the United States has been significantly impacted during the COVID-19 pandemic.

Funding

No funding support from any agency or institution was received for this study.

CRediT authorship contribution statement

This project was initiated by the American TCM Association (ATCMA). AYF is the primary researcher of this project. He designed, implemented and drafted the original manuscript. DGH and AS participated in discussing, drafting, and editing of the final manuscript. SFA and AM were partially involved in collecting the data, along with drafting and editing the manuscript.

Acknowledgements

The authors would like to express thanks to Dr. Hui Wei, Dr. Hai-he Tian and Dr. Hui Ou-yang from the ATCMA, and Dr. Wei-dong Lu from Harvard Medical School and Osher Research Center, for their help and support.

Declaration of competing interests

The authors declare that they have no competing interests. Due to the limitation of the authors' personal experience and perspective, this article may have some omissions and errors; comments or corrections are welcomed and appreciated.

References

[1] World Health Organization. WHO global report on traditional and complementary medicine 2019. Geneva: World Health Organization; 2019.
[2] Fan AY, Wang DD, Ouyang H, Tian H, Wei H, He D, et al. Acupuncture price in forty-one metropolitan regions in the United States: an out-of-pocket cost analysis based on OkCopay.com. J Integr Med 2019;17(5):315–20.
[3] Fan AY, Dr ASF. Lian Zhu, a founder of contemporary acupuncture medicine. Med Acupunct 2023;35(4):195–201.
[4] National Center for Complementary and Integrative Health. Acupuncture: what you need to know. (2022-10) [2023-11-23]. https://www.nccih.nih.gov/health/acupuncture-what-you-need-to-know.
[5] National Center for Complementary and Integrative Health. Statistics from the National Health Interview Survey. (2022-10) [2023-11-23]. https://www.nccih.nih.gov/health/statistics-from-the-national-health-interview-survey.
[6] Nahin RL, Rhee A, Stussman B. Use of complementary health approaches overall for pain management by US adults. JAMA 2024;331(7):613–5.
[7] Centers for Disease Control and Prevention. Understanding the opioid overdose epidemic. (2024-04) [2024-05-01]. https://www.cdc.gov/opioids/basics/epidemic.html.
[8] Centers for Disease Control and Prevention. Wide-ranging online data for epidemiologic research (WONDER). (2024-04) [2024-05-01]. http://wonder.cdc.gov.
[9] White House. Ending America's opioid crisis. (2018-03) [2023-11-23]. https://trumpwhitehouse.archives.gov/opioids/.
[10] Fan AY, Miller DW, Bolash B, Bauer M, McDonald J, Faggert S, et al. Acupuncture's role in solving the opioid epidemic: evidence, cost-effectiveness, and care availability for acupuncture as a primary, non-pharmacologic method for pain relief and management—White Paper 2017. J Integr Med 2017;15(6):411–25.
[11] U.S. Bureau of Labor Statistics. Occupational employment and wages, acupuncturists. (2022-05) [2023-11-23]. https://www.bls.gov/oes/current/oes291291.htm.
[12] Fan AY, Faggert S. Distribution of licensed acupuncturists and educational institutions in the United States in early of 2015. J Integr Med 2018;16(1):1–5.
[13] Fan AY, Stumpf SH, Faggert Alemi S, Matecki A. Distribution of licensed acupuncturists and educational institutions in the United States at the start of 2018. Complement Ther Med 2018;41:295–301.
[14] Russ CM, Gao Y, Karpowicz K, Lee S, Stephens TN, Trimm F, et al. The pediatrician workforce in the United States and China. Pediatrics 2023;151(6):e2022059143.
[15] Choi JS, Ziltzer R, Gadkaree SK, Adams ME, Huang TC. Neurotology workforce in the United States: gender diversity and geographic distribution. Otolaryngol Head Neck Surg 2023;168(6):1477–84.
[16] Young A, Pei X, Arnhart K, Carter JD, Chaudhry HJ. FSMB census of licensed physicians in the United States, 2022. J Med Regulat 2023;109(2):13–20.
[17] Hooker RS, Muchow AN. The 2013 census of licensed physician assistants. JAAPA 2014;27(7):35–9.
[18] U.S. Department of Health and Human Services. COVID-19 public health emergency. (2023-12) [2024-05-16]. https://www.hhs.gov/coronavirus/covid-19-public-health-emergency/index.html.
[19] Accreditation Commission for Acupuncture and Herbal Medicine. Directory. (2023) [2023-11-23]. https://acahm.org/directory-menu/directory/.
[20] The U.S. Department of Education. The database of accredited postsecondary institutions and programs—accreditation, agency list. (2023) [2023-11-23]. http://ope.ed.gov/accreditation/agencies.aspx.
[21] Fan AY, Alemi SF, Li YM. Dry needling: is it derived from acupuncture? How did nonacupuncturists start using it? Altern Ther Health Med 2020;26(3):40–6.
[22] Fan AY, Jiang J, Faggert S, Xu J. Discussion about the training or education for "dry needling practice". World J Acupunct Moxibustion 2016;26(2):6–10.
[23] Stumpf SH, Hardy ML, McCuaig S, Carr CR, Sarkisyan A. Acupuncture practice acts: a profession's growing pains. Explore 2015;11(3):217–21.
[24] United States Census Bureau. State population totals and components of change: 2020–2022. (2023-06) [2023-11-23]. https://www.census.gov/data/tables/time-series/demo/popest/2020s-state-total.html.
[25] Raso R, Fitzpatrick JJ, Masick K. Nurses' intent to leave their position and the profession during the COVID-19 pandemic. J Nurs Adm 2021;51(10):488–94.
[26] Zhong J, Bradford V, Fernandez AM, Infosino A, Soneru CN, Staffa SJ, et al. Continued challenges in pediatric anesthesia during COVID-19 in 2022: an international survey from the pediatric anesthesia COVID-19 collaborative. Paediatr Anaesth 2023;33(12):1020–8.
[27] USA Facts Team. 725,000 people left California in 2020. Which states did they move to? (2023-05) [2023-12-6]. https://usafacts.org/articles/725000-people-left-california-in-2020-which-states-did-they-move-to/.
[28] Hayes C, Coulter T. Is California, one of the bluest states in the US, at a turning point over crime, homelessness? (2022-04) [2023-12-6]. https://www.usatoday.com/story/news/nation/2022/04/14/california-turning-point-crime-homelessness/7214726001/?gnt-cfr=1.
[29] American Society of Acupuncturists. End of year wrap-up 2023 newsletter. (2023) [2023-12-6]. https://mailchi.mp/asacu/2023-end-of-year-wrap-up#From-the-Chair.
[30] Ward-Cook K, Hahn T. NCCAOM 2008 job task analysis: a report to the Acupuncture and Oriental Medicine Community. (2023) [2023-11-23]. http://www.nccaom.org/wp-content/uploads/pdf/JTA%202008%20Report.pdf.
[31] Ward-Cook K. Demographic and exam content comparison between 2013 and 2017 job analysis. (2023) [2023-11-23]. https://www.nccaom.org/wp-content/uploads/pdf/Comparison%20Between%20the%202013%20and%202017%20Job%20Analyses%2012-19.pdf.