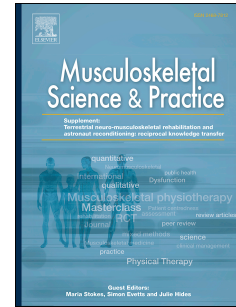


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Prevalence, patterns, and predictors of massage practitioner utilization: Results of a US nationally representative survey

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**TITLE PAGE****Prevalence, patterns, and predictors of massage practitioner utilization: Results of a US nationally representative survey****Authors**

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**Prevalence, patterns, and predictors of massage practitioner utilization: Results of a US nationally representative survey****ABSTRACT**

**Background:** The use of massage therapy is common, especially in patients with musculoskeletal pain. The purpose of this study was to examine the prevalence, utilization, socio-demographic and health-related predictors of massage practitioner consultations in the US population.

**Methods:** Cross-sectional data from the 2012 National Health Interview Survey for adults (n=34,525) was extracted and analyzed in 2017.

**Results:** Prevalence of massage practitioner utilization were 12.8% (lifetime) and 6.8% (last 12 months). Compared to non-users, those who used massage in the last year were more likely: female, at least high school educated, annual income  $\geq$ US\$ 15,000, diagnosed with spinal pain or arthritis, report moderate physical activity level as compared to low level, and consume alcohol as compared to being abstinent. Massage was mainly used for general wellness or disease prevention (56.3%), but also for specific, typically musculoskeletal, health problems (41.9%) for which 85.2% reported massage helped to some or a great deal. Most (59.1%) did not disclose massage use to their health care provider, despite 69.4% reporting massage therapy combined with medical treatment would be helpful.

**Conclusions:** Approximately 7% (15.4 million) of US adults used massage therapy in the past year, mainly for general disease prevention, wellness or musculoskeletal pain. The majority of respondents reported positive outcomes of massage on specific health problems and overall well-being. Massage utilization was rarely covered by health insurance. Despite the majority of massage users considered massage therapy combined with medical care helpful, most did not disclose massage therapy use to their health care provider.

## **Prevalence, patterns, and predictors of massage practitioner utilization: Results of a US nationally representative survey**

### BACKGROUND

Contemporary definitions of massage therapy typically comprise the clinical practice of assessing, treating and preventing bodily dysfunctions and pain to improve health, whereby the massage therapist employs various manual manipulation procedures and techniques targeting soft tissues, muscles and joints.<sup>1,2</sup> A recent US systematic review proposed the following definition of massage therapy: *"The systematic manipulation of soft tissue with the hands that positively affects and promotes healing, reduces stress, enhances muscle relaxation, improves local circulation, and creates a sense of well-being."*<sup>3</sup> Notably, therapeutic massage has developed as an integral part of most types of manual therapy related musculoskeletal practices and has played important parts in different medical traditions including Chinese, Indian and European health care.<sup>4</sup> Although the practice and use of massage is evident in many societies, its clinical application may differ depending on context and culture.

Previous estimates of using massage therapy within the past 12 months in the adult US population have been reported at 5.0% in 2002, 8.3% in 2007 and 6.9% in 2012.<sup>5,6</sup> A more comprehensive scientific review that targeted visits to massage practitioners by representative general population samples in six countries (USA, UK, Canada, Australia, Singapore and South Korea) reported 12-month prevalence figures of up to 20% with a median of 5.5% among adults.<sup>7</sup> The use of massage therapy can be even higher in certain sub-populations, particularly in patients with musculoskeletal pain, which may be of specific interest for manual therapy and musculoskeletal practitioners. A nationwide survey in Canada reported that 55.5% of patients with reported nonspecific chronic back pain and 48% of patients with arthritis or other musculoskeletal disorders had used therapeutic massage within the last 12 months.<sup>8</sup> Similarly, a nationally representative survey in Australia found that 77% of mid-aged women reported back pain during the last year and that 44.2% of those women had consulted with both conventional and complementary health providers, mostly massage practitioners (26.5%).<sup>9</sup> A subsequent Australian survey reported that massage therapy was the most utilized type of complementary therapy by middle-aged women.<sup>10</sup>

The fields of practice of massage therapy are broad and can be found in a variety of clinical contexts targeting different conditions. Correspondingly, there have been numerous scientific studies and systematic reviews conducted investigating massage in a range of areas of which a majority targeted musculoskeletal conditions and pain.<sup>3,11-44</sup> Whilst there is some emerging evidence of short-term effectiveness of massage for back and neck pain, as per two Cochrane reviews, the evidence of longer term effects are still lacking.<sup>25,26</sup> Systematic evaluations of massage have also been conducted for various medical conditions and for stress, anxiety, wellness and health promotion.<sup>33,45-60</sup> Based on the emerging evidence base for massage therapy, clinical practice guidelines and reports have recommended the integration of massage with other types of care.<sup>31,41-44,61</sup> Another clinically related aspect that may also support the adoption of massage therapy in manual therapy and musculoskeletal practice is the seemingly low incidence of adverse events following massage treatments delivered by trained practitioners.<sup>62,63</sup> Nonetheless, despite the growing evidence base of massage therapy for some conditions, more research is needed to elucidate significant knowledge gaps such as the effect of massage therapy on costs and cost-effectiveness, return-to-work rates, health promotion and disease prevention. Further exploration of the complexities involving the use and users of massage therapy in different clinical contexts and conditions are also needed.<sup>64</sup> Such information can be of particular relevance for massage therapists and other musculoskeletal practitioners as well as insurers and decision-makers in health care. The current study reports the prevalence, utilization, socio-demographic and health-related predictors of massage practitioner consultations in the US population.

## METHODS

### Data

The data analyses were based on the National Health Interview Survey (NHIS), a nationally representative survey monitoring the health of the US population in 2012. Specifically, data from the Family Core, the Sample Adult Core, and the Adult Complementary and Alternative Medicine questionnaire were used. The study data was extracted for analyses in 2016.

The Family Core and the Sample Adult Core questionnaires collected data on socio-demographic characteristics including age, gender, ethnicity, region, marital status, education, and annual household income; and on self-perceived general health status. The Adult Complementary and Alternative Medicine questionnaire collected data on the use of complementary and alternative medicine (CAM) therapies, including the use of massage.

A total of 42,366 households were eligible and 34,525 adults provided data (79.7% response rate).<sup>65</sup> Population-based estimates were calculated using weights calibrated to the 2010 census-based population estimates for age, gender, and ethnicity of the US civilian non-institutionalized population.

### Measures

Lifetime prevalence of massage practitioner utilization was determined with the following question: *Have you ever seen a provider or practitioner for massage for yourself?* Those who answered 'Yes' were presented with an additional question asking whether they also had seen a massage practitioner during the past 12-months.

Those who had consulted a massage practitioner in the past 12 months were asked to provide more details, such as the number of visits, the costs per each consultation, insurance coverage and the purchase of self-help books or other materials to learn about massage. They were asked about their reasons for using massage therapy including general reasons and specific medical conditions (a total of 88 possible conditions); disclosure of massage use to their personal health care provider and reasons for non-disclosure; perceived benefits of massage utilization, and information sources about massage.

The lifetime and 12-month prevalence of massage practitioner utilization were analyzed descriptively, as were the details of the massage therapy visits and the reasons for use. Results were reported as means and standard deviations, medians and ranges, weighted frequencies and distributions as reasonable.

### Statistical analyses

Socio-demographic characteristics were compared between those who had consulted a massage practitioner ever in their life/within the prior 12 months and those who had not using chi square tests. Independent predictors of massage use (ever used, used in prior 12 months) were identified via multiple logistic regression analyses. The following socio-demographic independent variables (hereon referred to as predictors; noting that these should not infer a causal relationship) were considered: age (18-29 years; 30-39; 40-49; 50-64; 65-74, 75 or older), gender (female; male), ethnicity (non-Hispanic White; Hispanic; African American; Asian; Other), region (West; Northeast; Midwest; South), marital status (not in relationship; in relationship), education (less than high school; high school and some college; Bachelor degree; Master degree or higher), and annual household income (less than \$15,000; \$15,000-\$34,999; \$35,000-\$74,999; \$75,000 or more). Additionally, health related factors such as general health status (excellent or very good; good; fair or poor), BMI 18.5-25 kg/m<sup>2</sup>; (<18.5; 25-30; 30 or more), health behaviors such as smoking (non-smoker, smoker), alcohol consumption (alcohol abstainer; light drinker; regular or heavy drinker), and exercise behavior (low level exerciser; moderate level exerciser; high level exerciser); and medical conditions/diseases (including chronic pain conditions, rheumatologic disorders, mental health disorders) were also used as potential predictors.

For the logistic regression modeling, only those factors associated with massage practitioner utilization at a  $p \leq 0.10$  in univariate analysis (chi square test) were included in the regression analyses. A backward stepwise procedure with a likelihood-ratio-statistic was utilized to produce the most parsimonious model. Due to the large sample size statistical significance was set a  $p \leq 0.005$ , and corresponding 99.5% confidence intervals were reported. Statistical analysis was performed using the Statistical Package for Social Sciences software (IBM SPSS Statistics for Windows, release 22.0. Armonk, NY: IBM Corp.). All statistical analyses were conducted in 2017.

## RESULTS

A total of 29.3 million US American adults had ever seen a massage practitioner in their life (lifetime prevalence 12.8%), and 15.4 million adults had consulted a massage practitioner within the prior 12 months (12 month prevalence 6.8%).

Predictors associated with the 12-months prevalence of massage practitioner utilization are presented in Table 1. Notably, the following associations have been found: Respondents who used massages in the past 12 months were more likely to be of female gender, with high school education or higher and having an annual income of at least US\$ 15,000. Furthermore they were more likely to consume alcohol as compared to being abstinent, report moderate physical activity level as compared to low level, and have a diagnosis of spinal pain, or arthritis. Respondents were less likely to have used massage if they were of Hispanic, Black or Asian origin, living in areas other than the West, smoking, and with a BMI over 30 kg/m<sup>2</sup>.

Ninety percent of those who had visited a massage practitioner within the past 12 months (89.5%) reported to know the exact number of times they consulted a practitioner, with the average number of visits being 6.6±8.2 (median: 4, range: 1-52). Health insurance covered at least some of the massage therapy costs for 15% of the respondents, less than half (41.5%) of whom had all of the costs of their massage therapy covered. The majority (83.6%) of respondents knew the exact amount they paid to consult the massage practitioner during the last 12 months, and the associated average total cost for all massage visits was US\$ 302.3±451.3 (median: 150, range: 0-25,000), and the average cost per visit was US\$ 57.3±50.9 (median: 50, range: 0-500). Only 2.1% of respondents reported they had purchased a self-help book or other materials to learn about massage; spending US\$ 61.1±67.8 on average (median: 25, range 0-200). Only small percentages of the massage users reported using the internet (11.3%), books, magazines or newspapers (8.1%) and scientific articles (4.3%) for information about massage (Table 2).

Most respondents reported seeing a massage practitioner for general wellness or disease prevention (56.3%), to improve their energy (29.7%), or to improve athletic or sports performance (20.2%). Many respondents reported associated positive outcomes of massage practitioner utilization, such as reduced stress/relaxation (75.9%), improved overall health and feeling better (68.7%), sleeping better (53.9%), and feeling better emotionally (49.6%) (Table 2). Back pain or back problems (47.8%), neck pain or neck problems (24.6%), joint pain or stiffness (15.6%) and muscle or bone pain (15.3%) were the most frequent health problems for which people saw a massage practitioner, and respondents reported that massage had helped “a great



deal” (49.5%), “some” (35.7%) or “only a little” (12.0%) to address these health problems (Table 2).

Respondents had used massage therapy because they believed that it would help when combined with their medical treatment (69.4%), it was considered natural (43.1%) and it focused on the whole person, mind, body and spirit (36.6%). Massage therapy was rated as very and somewhat important for maintaining health and well-being by 31.4% and 29.7% of users, respectively (Table 2).

Massage was mainly recommended by friends (30.4%), family members (27.9%) and medical doctors (20.7%). The use of massage therapy was disclosed to the personal health care provider by 40.9% of respondents. The main reasons for not disclosing massage use included: the provider did not ask (57.3%), the provider did not need to know (49.1%) and it was not used at the time (29.1%). Less than 5% of respondents were worried that the personal health care provider would react negatively or discourage massage therapy (Table 2).

## DISCUSSION

This study showed that a significant part (12.8%) of the adult US population had used therapeutic massage at some point in their lives. The corresponding one-year prevalence (6.8%) suggests that the utilization of massage has been stable over time in the US, ranging from 5% to 7% during the last decade<sup>5</sup> and is comparable to annual estimates of massage therapy utilization among general populations internationally (median of 5.5%).<sup>7</sup> Notably, this places massage therapy among the top musculoskeletal practitioner-based complementary health services utilized by adults in the US, together with osteopathy and chiropractic.<sup>5</sup> Reasons for this observed and consistently high utilization pattern may relate to the fact that musculoskeletal complaints including back and neck pain are major health concerns associated with visits to massage therapists and other musculoskeletal practitioners, which was also confirmed by the large number of respondents with such complaints, e.g. back pain (47.8%), in the present study.

A large proportion of the respondents identified massage as having helped them to address a specific health problem to a “great deal” (49.5%) or to “some” degree (35.7%). This concurs with previous research examining the perceived benefits of massage amongst persons with back

and neck pain.<sup>66</sup> Almost 70% of the respondents in the current study believed that the integration of massage therapy with their medical treatment could be helpful. Interestingly, this perspective is supported by some clinical guidelines for managing chronic back and neck pain which recommend the integration of massage.<sup>31,44,61</sup> However, clinical outcomes supporting long-term effects of massage for back and neck pain have not yet been established, as evidenced by Cochrane reviews specifically targeting this area of research.<sup>25,26</sup> Hence, despite evidence of limited adverse events and emerging evidence of short-term effects with massage for back and neck pain, the current lack of established long-term clinical effects make it difficult to recommend massage in differentiation to other active treatments for these disorders.

About 60% of respondents in our study did not disclose their use of massage therapy with their conventional health care provider, an association mostly due to their provider not enquiring (57.3%) or due to their perspective that their provider did not need to know (49.1%). This lack of communication regarding the use of CAM has long been reported<sup>67</sup> and continues to be of significant concern.<sup>68-72</sup> The fact that general wellness or general disease prevention were the most common reasons for using massage therapy amongst our study respondents, may in part influence their perceived relevance of communicating about their use of massage therapy within typically more "disease oriented" settings such as general practitioners' offices and other musculoskeletal practices. Hypothetically, patients with generally good health, as our respondents, may also have few occasions to discuss massage therapy with their personal health care providers due to few visits in conventional care. Similarly, the lack of causal associations between the general health status and the use of massage therapy in the current study suggests their medical problems such as back and neck pain may not be perceived by them as "severe enough" to warrant discussion with conventional medical providers. Recent Australian research suggests that the severity of back pain influence the choice and order of practitioner consultations that patients seek, i.e. women with more severe back pain are more likely to visit a conventional medical providers first whereas those with lesser pain explore multiple treatment alternatives including complementary care.<sup>73</sup> Nonetheless, the National Institutes of Health acknowledges the importance of patient-provider communication in its online public material about complementary medicine, which includes information about the safety and side effects of massage therapy.<sup>62</sup> Future research in the areas of musculoskeletal practice communication, negotiation and health care visits relating to massage therapy utilization is needed. Activities to

improve evidence-informed care and inter-professional collaboration and communication across CAM and conventional medical settings have recently been proposed, and massage therapy is one of several prioritized areas<sup>74,75</sup> Lastly, the associated reported costs of around 50-60 USD per visit for massage therapy services was strikingly similar to previously reported findings,<sup>76</sup> as were the fact that the vast majority of the costs were paid out-of-pocket by users.<sup>66,76,77</sup> The lack of financial resources may thus be a significant constraint for patients regarding the adoption of massage therapy, which can be verified by our results showing that those with higher annual incomes are more likely to use massage therapy. Future research is needed to clarify processes, structures and outcomes that support sustainable and longer-term benefits of integrating evidence-based massage therapy services in wider clinical musculoskeletal practice.

### Limitations

The US National Health Interview Survey is a well-established, internationally recognized epidemiological study. Nonetheless, the cross-sectional study design limits causal conclusions and as such the results mainly provide suggestions of association. Similarly, the use of self-reported data imposes other limitations such as risk of recall bias or measurement error. However, applied regression analyses controlling for confounding variables were applied to strengthen the interpretability of the study outcomes.

### Conclusions

Approximately 7% (15.4 million) of US adults consulted a massage therapist in 2012, mainly for general wellness or disease prevention, but also for specific, typically musculoskeletal, health problems. Most users paid out-of-pocket for massage therapy visits. The majority of users reported positive outcomes of massage therapy in several areas, notably for reducing stress, improve overall health and better sleep. Massage was also reported helpful by the majority of users with specific musculoskeletal conditions, especially pain or problems in the back or neck. However, despite the majority reporting that massage therapy combined with medical treatment would be helpful, most did not disclose their use of massage therapy to their health care provider.

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ACCEPTED MANUSCRIPT

TABLES

Table 1. Regression output including all predictors for the use of massage significant at  $p < 0.005$ . Analysis of cross-sectional data from the 2012 National Health Interview Survey for adults ( $n=34,525$ ). CI, confidence interval; OR, odds ratio. 'Reference' indicates the category against which the other categories of the same variable were tested against.

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Variable	Used massage in the past 12 months OR (99.5% CI)
Age (years)	
18 to 29	1.00 (Reference)
30 to 39	1.27 (0.99 to 1.62)
40 to 49	1.03 (0.79 to 1.33)
50 to 64	0.90 (0.58 to 1.17)
65 to 74	0.90 (0.48 to 1.39)
75 or greater	0.39 (0.10 to 1.54)
Gender	
Male	1.00 (Reference)
<b>Female</b>	<b>1.90 (1.60 to 2.25)</b>
Ethnicity	
Non-Hispanic White	1.00 (Reference)
<b>Hispanic</b>	<b>0.74 (0.57 to 0.98)</b>
<b>Black</b>	<b>0.63 (0.46 to 0.87)</b>
<b>Asian</b>	<b>0.59 (0.41 to 0.86)</b>

Other	1.15 (0.48 to 2.73)
Region	
West	1.00 (Reference)
<b>Northeast</b>	<b>0.61 (0.48 to 0.77)</b>
<b>Midwest</b>	<b>0.72 (0.58 to 0.88)</b>
<b>South</b>	<b>0.55 (0.45 to 0.67)</b>
Education	
Less than high school	1.00 (Reference)
<b>High School Graduate and some college</b>	<b>1.87 (1.20 to 2.90)</b>
<b>Bachelor degree</b>	<b>3.05 (1.92 to 4.83)</b>
<b>Master Degree or higher</b>	<b>3.81 (2.36 to 6.13)</b>
Marital status	
not in relationship	1.00 (Reference)
in relationship	0.99 (0.84 to 1.17)
Employment	
Not employed	1.00 (Reference)
Employed	1.15 (0.70 to 1.89)

## Income (US\$)

up to 14,999	1.00 (Reference)
<b>15,000 to 34,999</b>	<b>1.31 (1.02 to 1.69)</b>
<b>35,000 to 54,999</b>	<b>1.68 (1.29 to 2.19)</b>
<b>55,000 to 74,999</b>	<b>1.90 (1.41 to 2.56)</b>
<b>75,000 and higher</b>	<b>2.05 (1.53 to 2.76)</b>

Body Mass Index (kg/m<sup>2</sup>)

18.5-24.9	1.00 (Reference)
<18.5	0.78 (0.38 to 1.61)
25-29.9	0.88 (0.73 to 1.06)
<b>≥30</b>	<b>0.71 (0.58 to 0.88)</b>

## Smoking

Non smoking	1.00 (Reference)
<b>Smoking</b>	<b>0.68 (0.54 to 0.86)</b>

## Alcohol consumption

Abstainers	1.00 (Reference)
<b>Light</b>	<b>1.46 (1.18 to 1.80)</b>
<b>Moderate to heavy</b>	<b>1.49 (1.17 to 1.91)</b>



## Exercise

Low level exerciser	1.00 (Reference)
<b>Moderate level exerciser</b>	<b>1.46 (1.21 to 1.75)</b>
High level exerciser	1.34 (0.97 to 1.91)

## Health status

Very good to excellent	1.00 (Reference)
Good	0.85 (0.69 to 1.04)
Poor to fair	0.98 (0.69 to 1.41)

## Spinal pain

No spinal pain	1.00 (Reference)
<b>Spinal pain</b>	<b>2.70 (2.30 to 3.16)</b>

## Arthritis

No arthritis	1.00 (Reference)
<b>Arthritis</b>	<b>1.55 (1.24 to 1.93)</b>

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Table 2. Reasons for using massage, changes due to massage, and disclosure to personal health care provider. Numbers based on adults who indicated that they had used massage in the prior 12 months, and that massage was among the top 3 complementary and alternative medicine interventions they used for health (n=1,350).

<b>Item</b>	<b>% of respondents</b>
Reasons to use massage	
For general wellness or general disease prevention	56.3
To improve energy	29.7
To improve immune function	16.0
To improve athletic or sports performance	20.2
To improve memory or concentration	7.5
Did massage motivate to ...	
Eat healthier	11.5
Exercise more regularly	7.0
Eat more organic food	2.2
Cut back or stop drinking alcohol (only those respondents who indicated that they drank alcohol)	0.5
Cut back or stop smoking cigarettes (only those respondents who indicated that they smoked)	18.8
Did massage ...	
Give a sense of control over health	29.5
Help to reduce stress level or to relax	75.9
Help to sleep better	53.9
Help to feel better emotionally	49.6
Make it easier to cope with health problems	37.5

Improve overall health and make you feel better	68.7
Improve your relationships with others	20.6
Improve attendance at job or school (only those who indicated that they had a job/attended school)	13.2
How important was massage for maintaining health and well-being	
Very important	31.4
Somewhat important	29.7
Slightly important	19.7
Not at all important	17.2
Used massage for a specific health problem (top problem)	41.9
Back pain or back problems	47.8
Neck pain or neck problems	24.6
Joint pain or stiffness	15.6
Muscle or bone pain	15.3
Arthritis	8.2
Frequent stress	6.2
Massage helped for specific health problem ...	
A great deal	49.5
Some	35.7
Only a little	12.0
Not at all	2.6
Massage practitioner was seen because ...	
Medical treatments were too expensive	7.7
Therapy combined with medical treatment would help	69.4

Medical treatments do not work for your specific health problem	23.4
Medications cause side effects	17.3
It is natural	43.1
It focuses on the whole person, mind, body, and spirit	36.6
It treats the cause and not just the symptoms	44
It was part of your upbringing	7.5
Massage was recommended by ...	
A medical doctor	20.7
A family member	27.9
A friend	30.4
A co-worker	10.2
Massage disclosed to personal health care provider	40.9
Not disclosed because ...	
Not used at the time	29.1
They discouraged use of it in the past	3.9
Being worried they would discourage it	4.3
Being concerned about a negative reaction	4.4
Didn't think they needed to know	49.1
They didn't ask?	57.3
Don't think they know as much about it as you do	6.6
They didn't give enough time to tell them	6.9
Information sources on massage	
The internet	11.3

Books, magazines, or newspapers	8.1
DVDs, videos, or CDs	1.5
Television or radio	2.6
Scientific articles	4.3
Health food stores	1.8

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### REFERENCES

1. National Center for Complementary and Integrative Health. Massage Therapy NCCIH. Massage Therapy NCCIH. <https://nccih.nih.gov/health/massage>. Published 2012. Accessed May 5, 2016.
2. Government of Ontario. Massage Therapy Act, 1991, S.O. 1991, c. 27. <https://www.ontario.ca/laws/statute/91m27>. Accessed May 5, 2016.
3. Crawford C, Boyd C, Paat CF, et al. The Impact of Massage Therapy on Function in Pain Populations—A Systematic Review and Meta-Analysis of Randomized Controlled Trials: Part I, Patients Experiencing Pain in the General Population. *Pain Med.* May 2016;pnw099. doi:10.1093/pm/pnw099.
4. Zollman C, Vickers A, Richardson J. *ABC of Complementary Medicine*, Second Edition. Hoboken, GB: BMJ Books; 2009. <http://site.ebrary.com/lib/alltitles/docDetail.action?docID=10307458>. Accessed May 5, 2016.
5. Barnes PM, Bloom B, Nahin RL. Complementary and alternative medicine use among adults and children: United States, 2007. *Natl Health Stat Rep.* 2008;(12):1-23.
6. Clarke TC, Black LI, Stussman BJ, Barnes PM, Nahin RL. Trends in the use of complementary health approaches among adults: United States, 2002-2012. *Natl Health Stat Rep.* 2015;(79):1-16.
7. Harris PE, Cooper KL, Relton C, Thomas KJ. Prevalence of visits to massage therapists by the general population: a systematic review. *Complement Ther Clin Pract.* 2014;20(1):16-20. doi:10.1016/j.ctcp.2013.11.001.
8. Foltz V, St Pierre Y, Rozenberg S, et al. Use of complementary and alternative therapies by patients with self-reported chronic back pain: a nationwide survey in Canada. *Joint Bone Spine.* 2005;72(6):571-577. doi:10.1016/j.jbspin.2005.03.018.

9. Broom AF, Kirby ER, Sibbritt DW, Adams J, Refshauge KM. Use of complementary and alternative medicine by mid-age women with back pain: a national cross-sectional survey. *BMC Complement Altern Med*. 2012;12:98. doi:10.1186/1472-6882-12-98.
10. Adams J, Sibbritt D, Broom A, et al. Complementary and alternative medicine consultations in urban and nonurban areas: a national survey of 1427 Australian women. *J Manipulative Physiol Ther*. 2013;36(1):12-19. doi:10.1016/j.jmpt.2012.12.010.
11. Wong JJ, Shearer HM, Mior S, et al. Are manual therapies, passive physical modalities, or acupuncture effective for the management of patients with whiplash-associated disorders or neck pain and associated disorders? an update of the bone and joint decade task force on neck pain and its associated disorders by the optima collaboration. *Spine J Off J North Am Spine Soc*. December 2015. doi:10.1016/j.spinee.2015.08.024.
12. Cherkin DC, Sherman KJ, Deyo RA, Shekelle PG. A review of the evidence for the effectiveness, safety, and cost of acupuncture, massage therapy, and spinal manipulation for back pain. *Ann Intern Med*. 2003;138(11):898-906.
13. Vernon H, Humphreys K, Hagino C. Chronic Mechanical Neck Pain in Adults Treated by Manual Therapy: A Systematic Review of Change Scores in Randomized Clinical Trials. *J Manipulative Physiol Ther*. 2007;30(3):215-227. doi:10.1016/j.jmpt.2007.01.014.
14. Shengelia R, Parker SJ, Ballin M, George T, Reid MC. Complementary therapies for osteoarthritis: are they effective? *Pain Manag Nurs Off J Am Soc Pain Manag Nurses*. 2013;14(4):e274-288. doi:10.1016/j.pmn.2012.01.001.
15. Loew LM, Brosseau L, Tugwell P, et al. Deep transverse friction massage for treating lateral elbow or lateral knee tendinitis. *Cochrane Database Syst Rev*. 2014;11:CD003528. doi:10.1002/14651858.CD003528.pub2.
16. Yuan SLK, Matsutani LA, Marques AP. Effectiveness of different styles of massage therapy in fibromyalgia: a systematic review and meta-analysis. *Man Ther*. 2015;20(2):257-264. doi:10.1016/j.math.2014.09.003.
17. Ajimsha MS, Al-Mudahka NR, Al-Madzhar JA. Effectiveness of myofascial release: systematic review of randomized controlled trials. *J Bodyw Mov Ther*. 2015;19(1):102-112. doi:10.1016/j.jbmt.2014.06.001.
18. van den Dolder PA, Ferreira PH, Refshauge KM. Effectiveness of soft tissue massage and exercise for the treatment of non-specific shoulder pain: a systematic review with meta-analysis. *Br J Sports Med*. 2014;48(16):1216-1226. doi:10.1136/bjsports-2011-090553.
19. Cheng YH, Huang GC. Efficacy of massage therapy on pain and dysfunction in patients with neck pain: a systematic review and meta-analysis. *Evid-Based Complement Altern Med ECAM*. 2014;2014:204360. doi:10.1155/2014/204360.

20. Field T. Knee osteoarthritis pain in the elderly can be reduced by massage therapy, yoga and tai chi: A review. *Complement Ther Clin Pract*. 2016;22:87-92. doi:10.1016/j.ctcp.2016.01.001.
21. Chaibi A, Russell MB. Manual therapies for primary chronic headaches: a systematic review of randomized controlled trials. *J Headache Pain*. 2014;15:67. doi:10.1186/1129-2377-15-67.
22. Calixtre LB, Moreira RFC, Franchini GH, Albuquerque-Sendín F, Oliveira AB. Manual therapy for the management of pain and limited range of motion in subjects with signs and symptoms of temporomandibular disorder: a systematic review of randomised controlled trials. *J Oral Rehabil*. 2015;42(11):847-861. doi:10.1111/joor.12321.
23. Morell GC. Manual therapy improved signs and symptoms of temporomandibular disorders. *Evid Based Dent*. 2016;17(1):25-26. doi:10.1038/sj.ebd.6401155.
24. McFeeters S, Pront L, Cuthbertson L, King L. Massage, a complementary therapy effectively promoting the health and well-being of older people in residential care settings: a review of the literature. *Int J Older People Nurs*. February 2016. doi:10.1111/opn.12115.
25. Furlan AD, Giraldo M, Baskwill A, Irvin E, Imamura M. Massage for low-back pain. *Cochrane Database Syst Rev*. 2015;9:CD001929. doi:10.1002/14651858.CD001929.pub3.
26. Patel KC, Gross A, Graham N, et al. Massage for mechanical neck disorders. *Cochrane Database Syst Rev*. 2012;9:CD004871. doi:10.1002/14651858.CD004871.pub4.
27. Li Y, Wang F, Feng C, Yang X, Sun Y. Massage Therapy for Fibromyalgia: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *PLOS ONE*. 2014;9(2):e89304. doi:10.1371/journal.pone.0089304.
28. Kong LJ, Zhan HS, Cheng YW, Yuan WA, Chen B, Fang M. Massage Therapy for Neck and Shoulder Pain: A Systematic Review and Meta-Analysis. *Evid Based Complement Alternat Med*. 2013;2013:e613279. doi:10.1155/2013/613279.
29. Sutton D, Gross DP, Côté P, et al. Multimodal care for the management of musculoskeletal disorders of the elbow, forearm, wrist and hand: a systematic review by the Ontario Protocol for Traffic Injury Management (OPTIMA) Collaboration. *Chiropr Man Ther*. 2016;24:8. doi:10.1186/s12998-016-0089-8.
30. Chou R, Deyo R, Friedly J, et al. *Noninvasive Treatments for Low Back Pain*. Rockville (MD): Agency for Healthcare Research and Quality (US); 2016. <http://www.ncbi.nlm.nih.gov/books/NBK350276/>. Accessed April 27, 2016.
31. Brosseau L, Wells GA, Poitras S, et al. Ottawa Panel evidence-based clinical practice guidelines on therapeutic massage for low back pain. *J Bodyw Mov Ther*. 2012;16(4):424-455. doi:10.1016/j.jbmt.2012.04.002.

32. Chambers H. Physiotherapy and lumbar facet joint injections as a combination treatment for chronic low back pain. A narrative review of lumbar facet joint injections, lumbar spinal mobilizations, soft tissue massage and lower back mobility exercises. *Musculoskeletal Care*. 2013;11(2):106-120. doi:10.1002/msc.1045.
33. Liu S-L, Qi W, Li H, et al. Recent advances in massage therapy - a review. *Eur Rev Med Pharmacol Sci*. 2015;19(20):3843-3849.
34. Forestier R, Erol Forestier FB, Francon A. Spa therapy and knee osteoarthritis: A systematic review. *Ann Phys Rehabil Med*. March 2016. doi:10.1016/j.rehab.2016.01.010.
35. Kumar S, Beaton K, Hughes T. The effectiveness of massage therapy for the treatment of nonspecific low back pain: a systematic review of systematic reviews. *Int J Gen Med*. 2013;6:733-741. doi:10.2147/IJGM.S50243.
36. Piper S, Shearer HM, Côté P, et al. The effectiveness of soft-tissue therapy for the management of musculoskeletal disorders and injuries of the upper and lower extremities: A systematic review by the Ontario Protocol for Traffic Injury management (OPTIMA) collaboration. *Man Ther*. 2016;21:18-34. doi:10.1016/j.math.2015.08.011.
37. Netchanok S, Wendy M, Marie C, Siobhan O. The effectiveness of Swedish massage and traditional Thai massage in treating chronic low back pain: A review of the literature. *Complement Ther Clin Pract*. 2012;18(4):227-234. doi:10.1016/j.ctcp.2012.07.001.
38. Cheatham SW, Kolber MJ, Cain M, Lee M. The effects of self-myofascial release using a foam roll or roller massager on joint range of motion, muscle recovery, and performance: A systematic review. *Int J Sports Phys Ther*. 2015;10(6):827-838.
39. Keeratitanont K, Jensen MP, Chatchawan U, Auvichayapat P. The efficacy of traditional Thai massage for the treatment of chronic pain: A systematic review. *Complement Ther Clin Pract*. 2015;21(1):26-32. doi:10.1016/j.ctcp.2015.01.006.
40. Mącznik AK, Schneiders AG, Sullivan SJ, Athens J. What “CAM” we learn about the level of evidence from 60 years of research into manipulative and body-based therapies in sports and exercise medicine? *Complement Ther Med*. 2014;22(2):349-353. doi:10.1016/j.ctim.2014.02.004.
41. Chou R, Qaseem A, Snow V, et al. Diagnosis and treatment of low back pain: a joint clinical practice guideline from the American College of Physicians and the American Pain Society. *Ann Intern Med*. 2007;147(7):478-491.
42. Bryans R, Decina P, Descarreaux M, et al. Evidence-based guidelines for the chiropractic treatment of adults with neck pain. *J Manipulative Physiol Ther*. 2014;37(1):42-63. doi:10.1016/j.jmpt.2013.08.010.
43. Côté P, Wong JJ, Sutton D, et al. Management of neck pain and associated disorders: A clinical practice guideline from the Ontario Protocol for Traffic Injury Management



- (OPTIMA) Collaboration. *Eur Spine J Off Publ Eur Spine Soc Eur Spinal Deform Soc Eur Sect Cerv Spine Res Soc*. March 2016. doi:10.1007/s00586-016-4467-7.
44. Bronfort G, Haas M, Evans R, Leininger B, Triano J. Effectiveness of manual therapies: the UK evidence report. *Chiropr Osteopat*. 2010;18:3. doi:10.1186/1746-1340-18-3.
  45. Yang X, Zhao H, Wang J. Chinese massage (Tuina) for the treatment of essential hypertension: a systematic review and meta-analysis. *Complement Ther Med*. 2014;22(3):541-548. doi:10.1016/j.ctim.2014.03.008.
  46. Xiong XJ, Li SJ, Zhang YQ. Massage therapy for essential hypertension: a systematic review. *J Hum Hypertens*. 2015;29(3):143-151. doi:10.1038/jhh.2014.52.
  47. Wang X, Yin J. Complementary and Alternative Therapies for Chronic Constipation. *Evid-Based Complement Altern Med ECAM*. 2015;2015:396396. doi:10.1155/2015/396396.
  48. Ruotsalainen JH, Verbeek JH, Mariné A, Serra C. Preventing occupational stress in healthcare workers. *Cochrane Database Syst Rev*. 2014;12:CD002892. doi:10.1002/14651858.CD002892.pub4.
  49. Posadzki P, Parekh-Bhurke S. Incorporation of massage into psychotherapy: an integrative and conjoint approach. *Chin J Integr Med*. 2011;17(2):154-158. doi:10.1007/s11655-011-0633-2.
  50. Poppendieck W, Wegmann M, Ferrauti A, Kellmann M, Pfeiffer M, Meyer T. Massage and Performance Recovery: A Meta-Analytical Review. *Sports Med Auckl NZ*. 2016;46(2):183-204. doi:10.1007/s40279-015-0420-x.
  51. Nelson NL. Massage therapy: understanding the mechanisms of action on blood pressure. A scoping review. *J Am Soc Hypertens JASH*. 2015;9(10):785-793. doi:10.1016/j.jash.2015.07.009.
  52. Moyer CA, Seefeldt L, Mann ES, Jackley LM. Does massage therapy reduce cortisol? A comprehensive quantitative review. *J Bodyw Mov Ther*. 2011;15(1):3-14. doi:10.1016/j.jbmt.2010.06.001.
  53. Lee MS, Lee EN, Ernst E. Massage therapy for breast cancer patients: a systematic review. *Ann Oncol Off J Eur Soc Med Oncol ESMO*. 2011;22(6):1459-1461. doi:10.1093/annonc/mdr147.
  54. Hou W-H, Chiang P-T, Hsu T-Y, Chiu S-Y, Yen Y-C. Treatment effects of massage therapy in depressed people: a meta-analysis. *J Clin Psychiatry*. 2010;71(7):894-901. doi:10.4088/JCP.09r05009blu.
  55. Heneghan NR, Adab P, Balanos GM, Jordan RE. Manual therapy for chronic obstructive airways disease: a systematic review of current evidence. *Man Ther*. 2012;17(6):507-518. doi:10.1016/j.math.2012.05.004.

56. Field T. Massage therapy research review. *Complement Ther Clin Pract*. 2014;20(4):224-229. doi:10.1016/j.ctcp.2014.07.002.
57. Field T, Diego M, Hernandez-Reif M. Moderate pressure is essential for massage therapy effects. *Int J Neurosci*. 2010;120(5):381-385. doi:10.3109/00207450903579475.
58. de Alvarenga GM, Remigio Gamba H, Elisa Hellman L, Ganzert Ferrari V, Michel de Macedo R. Physiotherapy Intervention During Level I of Pulmonary Rehabilitation on Chronic Obstructive Pulmonary Disease: A Systematic Review. *Open Respir Med J*. 2016;10:12-19. doi:10.2174/1874306401610010012.
59. Moyer CA, Rounds J, Hannum JW. A meta-analysis of massage therapy research. *Psychol Bull*. 2004;130(1):3-18. doi:10.1037/0033-2909.130.1.3.
60. Hawk C, Ndetan H, Evans Jr. MW. Potential role of complementary and alternative health care providers in chronic disease prevention and health promotion: An analysis of National Health Interview Survey data. *Prev Med*. 2012;54(1):18-22. doi:10.1016/j.ypmed.2011.07.002.
61. National Collaborating Centre for Primary Care (UK). *Low Back Pain: Early Management of Persistent Non-Specific Low Back Pain*. London: Royal College of General Practitioners (UK); 2009. <http://www.ncbi.nlm.nih.gov/books/NBK11702/>. Accessed May 5, 2016.
62. National Center for Complementary and Integrative Health. *Massage Therapy for Health Purposes*. NCCIH. <https://nccih.nih.gov/health/massage/massageintroduction.htm>. Published 2017. Accessed January 27, 2017.
63. Yin P, Gao N, Wu J, Litscher G, Xu S. Adverse events of massage therapy in pain-related conditions: a systematic review. *Evid-Based Complement Altern Med ECAM*. 2014;2014:480956. doi:10.1155/2014/480956.
64. Broom AF, Kirby ER, Sibbritt DW, Adams J, Refshauge KM. Back pain amongst mid-age Australian women: a longitudinal analysis of provider use and self-prescribed treatments. *Complement Ther Med*. 2012;20(5):275-282. doi:10.1016/j.ctim.2012.05.003.
65. Centers for Disease Control and Prevention. 2012 National Health Interview Survey (NHIS) Public Use Data Release: NHIS Survey Description. [ftp://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Dataset\\_Documentation/NHIS/2012/srvydesc.pdf](ftp://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2012/srvydesc.pdf). Published 2013.
66. Wolsko PM, Eisenberg DM, Davis RB, Kessler R, Phillips RS. Patterns and perceptions of care for treatment of back and neck pain: results of a national survey. *Spine*. 2003;28(3):292-297; discussion 298. doi:10.1097/01.BRS.0000042225.88095.7C.
67. Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the united states, 1990-1997: Results of a follow-up national survey. *JAMA*. 1998;280(18):1569-1575. doi:10.1001/jama.280.18.1569.

68. Murthy V, Sibbritt DW, Adams J. An integrative review of complementary and alternative medicine use for back pain: a focus on prevalence, reasons for use, influential factors, self-perceived effectiveness, and communication. *Spine J Off J North Am Spine Soc.* 2015;15(8):1870-1883. doi:10.1016/j.spinee.2015.04.049.
69. Sibbritt D, Adams J, Young AF. A profile of middle-aged women who consult a chiropractor or osteopath: findings from a survey of 11,143 Australian women. *J Manipulative Physiol Ther.* 2006;29(5):349-353. doi:10.1016/j.jmpt.2006.04.013.
70. Pappas S, Perlman A. Complementary and alternative medicine. The importance of doctor-patient communication. *Med Clin North Am.* 2002;86(1):1-10.
71. Murthy V, Sibbritt D, Adams J, Broom A, Kirby E, Refshauge KM. Consultations with complementary and alternative medicine practitioners amongst wider care options for back pain: a study of a nationally representative sample of 1,310 Australian women aged 60-65 years. *Clin Rheumatol.* 2014;33(2):253-262. doi:10.1007/s10067-013-2357-5.
72. Simon GE, Cherkin DC, Sherman KJ, Eisenberg DM, Deyo RA, Davis RB. Mental health visits to complementary and alternative medicine providers. *Gen Hosp Psychiatry.* 2004;26(3):171-177. doi:10.1016/j.genhosppsych.2004.01.002.
73. Sibbritt D, Lauche R, Sundberg T, et al. Severity of back pain influences choice and order of practitioner consultations across conventional, allied and complementary health care: a cross-sectional study of 1851 mid-age Australian women. *Submitt Manuscr.* 2016.
74. Goldblatt E, Wiles M, Schwartz J, Weeks J. Competencies for optimal practice in integrated environments: examining attributes of a consensus interprofessional practice document from the licensed integrative health disciplines. *Explore NY.* 2013;9(5):285-291. doi:10.1016/j.explore.2013.06.006.
75. Brett J, Brimhall J, Healey D, Pfeifer J, Prenguber M. Competencies for public health and interprofessional education in accreditation standards of complementary and alternative medicine disciplines. *Explore NY.* 2013;9(5):314-320. doi:10.1016/j.explore.2013.06.001.
76. Lee AC, Kemper KJ. Practice patterns of massage therapists. *J Altern Complement Med N Y N.* 2000;6(6):527-529. doi:10.1089/acm.2000.6.527.
77. Nahin RL, Stussman BJ, Herman PM. Out-Of-Pocket Expenditures on Complementary Health Approaches Associated With Painful Health Conditions in a Nationally Representative Adult Sample. *J Pain Off J Am Pain Soc.* 2015;16(11):1147-1162. doi:10.1016/j.jpain.2015.07.013.

**HIGHLIGHTS**

- This was a nationally representative study of massage use in the US adult population
- The prevalence of massage practitioner use were 12.8% (lifetime) and 6.8% (12-month)
- Massage was mainly used for general wellness or disease prevention (56.3%)
- Massage was also used for specific typically musculoskeletal health problems (41.9%)
- Most (59.1%) did not disclose the use of massage therapy to their healthcare provider