

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

EXPLORE

journal homepage: [www.elsevier.com/locate/jsch](https://www.elsevier.com/locate/jsch)

## Prevalence and determinants of massage therapy use in the U.S.: Findings from the 2022 National Health Interview Survey

Jeff Levin<sup>a,b,c,\*</sup>, Matt Bradshaw<sup>a</sup>

<sup>a</sup> Institute for Studies of Religion, Baylor University, Waco, TX, USA

<sup>b</sup> Medical Humanities Program, Baylor University, Waco, TX, USA

<sup>c</sup> Department of Psychiatry and Behavioral Sciences, Duke University School of Medicine, Durham, NC, USA

### ARTICLE INFO

**Keywords:**  
Health  
Epidemiology  
Massage therapy  
Pain  
Prevalence  
U.S.

### ABSTRACT

**Background:** This study presents findings on the prevalence and determinants of past-year massage therapy use among U.S. adults from the 2022 round of the National Health Interview Survey (NHIS) (total available N = 27,651), an annual national population survey.

**Methods:** The NHIS uses face-to-face interviews on a representative sample of the civilian, noninstitutionalized U.S. population drawn using a systematic, stratified, single-stage probability design. The analyses consist of logistically modeling the determinants of three outcome (dependent) measures: past year utilization of a practitioner of massage, past year utilization of massage for pain, and past-year utilization of massage to restore overall health. Exposure (independent) variables include numerous sociodemographic, health services, health-related, mental health and well-being, and behavioral indicators.

**Results:** The past-year prevalence rate for visiting a massage therapist in the U.S. is 11.1 %. The past-year rate for massage visits for pain is 6.0 %, and for restoring overall health is 8.5 %. Significantly higher rates are found among females and socioeconomically advantaged individuals, among other categories, and the strongest net determinant of massage therapy utilization is use of complementary or integrative practitioners.

**Conclusion:** It is apparent that massage therapy is a commonly utilized therapeutic modality in the U.S. While use of complementary or integrative therapies is a significant determinant of massage utilization, it may not be fitting to consider massage therapy itself as an “alternative” therapy, but rather a widely used and increasingly mainstream therapeutic modality meriting wider integration into the community of healthcare professions.

### Introduction

Massage therapy is a bodywork modality, or class of modalities whose definition and professional boundaries have evolved over the past few decades. A prominent textbook defined massage therapy as “professional, structured therapeutic touch”<sup>1</sup> (p. 3), and an authoritative osteopathic medical text elaborated on this, defining massage as “[t]herapeutic friction, striking, and kneading of the body”<sup>2</sup> (p. 1574). Massage has also been defined by the U.S. National Center for Health Statistics (NCHS) as “[m]anipulation of the body’s muscle and connective tissues to enhance the physical functioning of those tissues, and promote relaxation and well-being”<sup>3</sup> (p. 6). In practice, as applied to clients, massage has been termed “an action energy focused outside the body that has the ability to exert power . . . [which] is received and internalized”<sup>4</sup> (p. 6). Massage has been described further as an effective

counter stimulus method especially for the nonpharmacological control of pain.<sup>5</sup> An influential best-practices symposium held in 2010 debated a variety of discrete definitions, concluding by consensus that, besides being characteristically multidimensional,

Massage therapy consists of the application of massage and non-hands-on components, including health promotion and education messages, for self-care and health maintenance; therapy, as well as outcomes, can be influenced by: therapeutic relationships and communication; the therapist’s education, skill level, and experience; and the therapeutic setting.<sup>6</sup>

The origins of massage as a therapeutic modality date back thousands of years<sup>7</sup>; as an occupation in the U.S. date to the 1850s and the work of two New York physicians, the Taylor brothers, who had learned Swedish methods<sup>8</sup>; and as a regulated profession in the U.S. date to 1916

\* Corresponding author.

E-mail address: [jeff\\_levin@baylor.edu](mailto:jeff_levin@baylor.edu) (J. Levin).

<https://doi.org/10.1016/j.explore.2024.05.013>

Received 29 February 2024; Received in revised form 21 May 2024; Accepted 24 May 2024

Available online 25 May 2024

1550-8307/© 2024 Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

in Ohio.<sup>9</sup> Its professional origins can be traced back even further.<sup>10</sup> Since establishment of the U.S. National Institutes of Health (NIH) Office of Alternative Medicine (now the National Center for Complementary and Integrative Health) in 1992, massage has been classified by the NIH as a “manual healing method”<sup>11</sup> (pp. 124-129), later as a “manipulative and body-based method”<sup>12</sup> (pp. 25-26), and, more recently, as one of a list of “psychological and physical approaches”<sup>13</sup> (pp. 19-20). Massage therapists in the U.S. are licensed at the state level, and work in numerous settings, including clinically in medical institutions and healthcare settings,<sup>14</sup> as well as in private (including home-based) or group practices, health or beauty spas, and organizations of various types, such as corporations and universities with student clinics or health centers.<sup>15</sup>

Massage therapy exists within a parallel healthcare sector whose population rates and determinants of utilization are under-documented compared to those of clinical medicine and its specialties. We are not speaking here of the sector comprising complementary or integrative medical therapies, nor of “vernacular” modalities such as prayer and folk healing. Rather, organizationally and professionally massage therapy is more akin to the allied health professions, such as physical and occupational therapy, in that therapeutic massage and bodywork is a board-certified profession whose practitioners provide therapeutic interventions for clients seeking to address pain, somatic and functional complaints, and other symptomatology.<sup>16</sup> As such, it is disadvantageous that data on the utilization and determinants of massage therapy are more often obtained from studies drawing on small, non-representative samples and that such investigations are underrepresented in population-based health services research.<sup>17</sup>

Numerous massage therapy modalities exist,<sup>18</sup> including Swedish, deep tissue, neuromuscular, structural integration, sports, and prenatal, as well as various Eastern and energy-based methods, with subtle to substantial differences in technique, underlying theory, and/or clientele, some requiring additional training and certification. Indeed, it has been suggested that massage therapy is “more than a modality”<sup>19</sup> and better referred to as a specific “health service”<sup>19</sup> (p. 44), reinforcing an understanding of the massage and bodywork profession as its own sector of healthcare delivery and not reducible to or categorizable as a single technique or adjunct. Moreover, this also underscores the value in presenting massage therapy as a complement to or an integrative part of a holistic, multidisciplinary approach to addressing client needs, and not simply an “alternative” therapy.

Massage therapists are often eclectic—that is, trained and licensed in massage therapy, practicing several different varieties, and certified in additional forms of bodywork,<sup>20</sup> such as craniosacral therapy, manual lymph drainage, myofascial release, reflexology, trigger-point therapy, and Shiatsu, and even subtle-energy-based modalities such as Reiki and other holistic treatments.<sup>21</sup> One review found that over 90 % of massage therapists are trained in multiple therapies—the median number being eight—and, in all, it identified over 170 different therapeutic massage and bodywork modalities.<sup>22</sup> For respective therapists, these modalities may be practiced separately, or combined within particular client sessions. Dozens of distinctive bodywork modalities draw on validated or hypothesized mind-body connections,<sup>23,24</sup> and massage therapists may work from within a strictly Western biomedical paradigm or more intuitively or from within a spiritual or metaphysical context<sup>25</sup>—or, as with other complementary or integrative therapies, clients may choose to interpret their bodywork experiences in such contexts.<sup>26</sup> Further, while defining their work as a primarily “biomechanical intervention”<sup>27</sup> (p. P25), research has shown that massage therapists recognize that their services may also fill additional functions for some clients, including educational and even psychotherapeutic,<sup>27</sup> even though the latter is not within the legally accepted scope of practice for the profession.<sup>28</sup>

According to the most recent systematic review of national population data, and depending upon the sample and year of the respective survey, past-year prevalence of massage therapist utilization among adult Americans ranges from 2.0 to 14.0 %, with a median across surveys of 5.5 %.<sup>29</sup> In a more recent national survey, lifetime prevalence of

massage use, as of 2012, was estimated at 12.8 %; in the same survey, past-year prevalence was 6.8 %.<sup>30</sup> Such data points, however, are few and not current. Determinants of utilization have been even less often investigated, and existing prevalence data have been subject to only minimal stratification. The two most publicized national population surveys of complementary and integrative medical care utilization in the U.S., included in the 1990 and 1997 rounds of the National Health Interview Survey (NHIS), identified massage therapy as one of the most widely utilized “alternative” healing modalities, yet did not follow up by reporting on its predictors or correlates of use.<sup>31,32</sup>

Questions thus remain: who uses massage therapy, how much, and why? Some older and possibly outdated findings have been reported on health-related and socioeconomic determinants of utilization,<sup>33</sup> but little if anything on behavioral determinants. The same could be said for complementary and integrative therapies in general, but the lack of reliable population-based utilization data, according to a couple of meta-analyses published 20 years apart, has seemed more pronounced for massage.<sup>34,35</sup> This is especially frustrating as published commentaries and reviews have put forth research agendas for the profession in order to “guide the development of the knowledge base that serves as the foundation of practice”<sup>36</sup> (p. 42), yet such research has so far not been widely integrated into massage therapy delivery or current clinical standards of practice.<sup>37</sup> As for so many therapies outside of the mainstream of Western medical care, inattention to knowledge translation<sup>38</sup>—the process of applying results from research studies to clinical practice and professional training—remains a challenge for the massage profession,<sup>39</sup> in large part due to a paucity of health services research studies of patterns and determinants of use. It should be noted that evidence exists that massage therapists themselves would welcome research that might help to promote the profession, and would be willing to participate in such studies.<sup>40</sup>

The present paper efforts to address these questions. First, it reviews prior published findings on the prevalence and determinants of massage therapy. Second, it presents new findings based on massage-related items contained in the 2022 round of the NHIS. Third, it discusses the implications of these findings for massage therapists and for health services research on massage therapy. It has been advocated that it is in the best interest of the massage profession, as for all health-related professions, that its parameters of practice become more evidence-based and that practitioners gain at least a modicum of research literacy,<sup>41</sup> even if simply to publish more comprehensive case reports.<sup>42</sup> Yet some prior research agendas, while otherwise detailed and thoughtful, exclude health services research, such as studies of utilization.<sup>36</sup> The present study is an effort to tackle this issue.

### Massage therapy utilization

Aside from the review and national surveys cited above, few recent studies have provided information on use of massage therapy in the U.S., either across the entire population or in demographic or health-related subgroups. Findings from the 2002 and 2007 NHIS reported rates of massage therapist utilization comparable to the early surveys, and identified racial/ethnic differences, including modestly higher rates of past-year use among Whites and Asians than among Blacks and Hispanics.<sup>43</sup> Findings on use of massage therapy for chronic low back pain during the COVID-19 pandemic, using data from the Pain Registry for Epidemiological, Clinical, and Interventional Studies and Innovation, reported higher use among older adults, and no sex, race, or ethnic differences.<sup>44</sup> A study using a church-based cohort of African Americans in Houston reported a past-year prevalence of massage therapy utilization of 28.2 %, considerably higher than what was found in other surveys.<sup>45</sup> This may be a function of this study’s respondents, three quarters of whom were female and about half of whom were college graduates.

Research studies published outside of the U.S. also have weighed in. These include a study of Australian women, who were more likely to consult a massage therapist if they had been diagnosed with

musculoskeletal problems<sup>46</sup>; an editorial review in a British journal summarizing evidence that massage facilitates post-exercise recovery,<sup>47</sup> also summarized in a U.S. review<sup>48</sup>; and a Canadian dissertation reporting that utilization of massage therapy among older adults is a function of socioeconomic factors such as household income.<sup>49</sup> Reasons for receiving massage include referral from a medical provider due to a specific diagnosis; self-referral as an adjunct to medical care or other self-help efforts; part of a general wellness and health maintenance or fitness regimen; and for purposes of self-actualization or spiritual growth. According to the American Massage Therapy Association, among the two dozen reasons that are most often given for seeking massage therapy are in order to relieve stress, pain, anxiety, or tension; to reduce symptoms for a wide range of conditions including depression, arthritis, and migraine; and to improve health and well-being among cardiovascular and cancer patients.<sup>50</sup>

A wide variety of health outcomes and physiological and psychological responses has been studied in relation to massage therapy.<sup>51</sup> A PubMed search (“massage therapy” AND “utilization OR use”) turned up over 500 articles. These include over 130 meta analyses, review articles, or systematic reviews for myriad chronic diseases (e.g., arthritis, COPD, kidney disease, Parkinson’s, hypertension), pain disorders (e.g., neuropathy, migraine, low-back pain, cancer pain), psychiatric or neurological diagnoses (e.g., bipolar disorder, anxiety, depression, anorexia, dementia), and more. Individual one-off studies (not summarized in focused review articles) cover an even broader range of health outcomes, clinical diagnoses, and physiological markers.

On the whole, massage therapy has been found to exhibit therapeutic or salutogenic (healing) effects and/or to be an efficacious adjunct to medical treatment for numerous chronic and acute somatic and psychiatric symptomatology.<sup>52</sup> The basic sciences of its therapeutic mechanisms are grounded in kinesiology, biomechanics, and the nervous and endocrine systems.<sup>53</sup> Posited physiological mechanisms underlying therapeutic effects of moderate pressure massage include increased vagal activity and reduced cortisol level; increased alertness and attentiveness; enhanced immune function in the form of production of more natural killer cells; and, with respect to pain, reduction in deep sleep deprivation, increased levels of serotonin, the body’s natural anti-pain neurotransmitter, and stimulating longer and more myelinated nerve fibers.<sup>54</sup>

To summarize, despite the existence of national prevalence data, although somewhat dated, as well as an extensive range of clinical applications and considerable basic biomedical research on therapeutic mechanisms, research on the antecedents or correlates of massage therapy use is sparse. A few studies since the 1990s, cited above, have stratified lifetime or past-year use by a few sociodemographic variables, such as age, race, and ethnicity. But, beyond that, we do not have much empirical confirmation of sociodemographic, health services, physical- or mental-health-related, or behavioral determinants of utilization, at least from nationally representative population data. Nor do we know conclusively, for example, if use of complementary or integrative medical modalities predisposes one to seek massage. This contrasts with the literature on many such therapies, for which substantial bodies of population-based findings exist for both prevalence and determinants of use, even for modalities as off the beaten path as spiritual and psychic healers<sup>55</sup> and healing prayer.<sup>56</sup> To address this lacuna, we present findings on massage therapy using new data from the 2022 round of the NHIS, a national population-based survey of U.S. adults, in order to identify prevalence estimates and determinants of the utilization of massage therapists.

## Methods

### Study sample

The present study consists of secondary analysis of the 2022 round of the NHIS, an annual nationally representative probability survey of the

U.S. population.<sup>57</sup> The NHIS is a data collection program of the NCHS, part of the Centers for Disease Control and Prevention, and has been conducted since 1957. The survey data are anonymized and contain no personal identifiers, and are publicly available and freely downloadable by researchers. Thus, the present analyses were exempt from human subjects review.

The target population for the NHIS is the civilian, noninstitutionalized population residing in the U.S. at the time of the interview. The survey used a face-to-face interview format on a representative sample of households and noninstitutional group quarters stratified by state and drawn through a single-stage probability sample design that systematically selected respondents from defined sample clusters (total available N for adult sample = 27,651, AAOPR RR2 final sample adult response rate = 47.7 %).<sup>58</sup> Surveys were conducted from January 1, 2022, through December 31, 2022, using computer-assisted personal interviewing (CAPI), usually in respondents’ homes, supplemented with telephone interviews if needed or requested. For most measures in the NHIS, percentages with unknown values are typically small (less than 5 % and often less than 1 %). The survey contained three items assessing past-year utilization of the services of a massage therapist, none of which has been used to date in published analyses of the 2022 study sample, which became available for public use in July, 2023. The last round of the NHIS to contain any massage-related items was the 2012 survey. Additional details on the 2022 survey can be found at: <https://www.cdc.gov/nchs/nhis/2022nhis.htm>.

### Measures

The three outcome (dependent) variables are *saw a practitioner of massage* (“During the past 12 months, did you see a practitioner of massage?”; recoded: 0 = no, 1 = yes), *massage visit for pain* (“During the past 12 months, did you see a practitioner of massage to treat or manage physical pain?”; recoded: 0 = no, 1 = yes), and *massage visit to restore overall health* (“During the past 12 months, did you see a practitioner of massage to restore your overall health?”; recoded: 0 = no, 1 = yes).

Exposure (independent) variables include numerous sociodemographic, health services, health-related, mental health and well-being, and behavioral measures. *Sociodemographic variables* were age, sex, race/ethnicity, education, family income-to-poverty ratio (IPR), and region. *Health services variables* were health insurance coverage, problems paying medical bills, and past-year physician use, prescription medication use, chiropractic use, acupuncture use, naturopathy use, meditation, guided imagery, yoga, and mental healthcare use. *Health-related variables* were self-rated health, chronic conditions, body mass index (BMI), difficulty in walking or climbing stairs, and difficulty in walking 100 yards. *Mental health and well-being variables* were frequency of anxiety, frequency of depression, and life satisfaction. *Behavioral variables* were smoking, alcohol consumption, nightly hours sleep, and weekly times at least moderate physical activity.

### Data analysis

Two analyses were conducted. First, the prevalence of past-year utilization of massage therapy (in %) was examined across categories of the exposure variables, separately for each of the three massage variables. Percentages represent weighted proportions based on the distribution of the population. Differences are calculated using Wald F-tests,<sup>59,60</sup> an appropriate “asymptotic” alternative to the more familiar  $\chi^2$  test given the construction of these variables and their distribution. The output is interpreted similarly: a test of whether there are statistically significant differences in prevalence rates across categories of a respective exposure variable.

Second, using multivariable logistic regression, each of the three massage variables was regressed separately onto all of the independent variables simultaneously. This enabled identification of net effects of respective determinants—that is, adjusting for effects of all other

variables in the model. For each of the three logistic models, we report the logistic coefficient ( $\beta$ ) and standard error (se), as well as the odds ratio estimate (OR) and associated 95 % confidence interval (CI) for each exposure variable. Analyses were conducted using survey commands in Stata 15 and accounted for the complex sampling design by adjusting for weights, sampling units, and strata.

**Results**

*Prevalence of massage therapy use*

In Table 1, prevalence rates (in %) are reported for having visited a massage therapist in the past year, in general, as well as specifically for pain or for health reasons. Overall, 11.1 % of the U.S. adult population visited a massage therapist in 2021, for any reason, while 6.0 % saw a massage therapist to address pain and 8.5 % for other health-related reasons. Statistically significant differences were found across categories of many other variables, for any use of massage therapy as well as for pain or for health reasons.

Differences were found in past-year prevalence of massage therapy use, in general, by age, sex, race/ethnicity, education, IPR, region, health insurance status, seeing a physician, prescription medication use, use of complementary or alternative medical (CAM) modalities (chiropractic, acupuncture, naturopathy), meditation, guided imagery, yoga, receiving mental health care, self-rated health, BMI, physical limitations, physical activity, smoking and drinking, hours of sleep, fatigue, anxiety, depression, and life satisfaction. For pain-related visits, differences were found across the same characteristics except for self-rated health, physical limitations, and life satisfaction. For other health-related visits, differences were found for the exact same characteristics as for overall massage therapy use. The number of statistically significant findings is not surprising given the large sample size. A more interesting observation may be those variables for which there were no significant differences.

*Determinants of massage therapy use*

In Table 2, statistically significant net determinants are reported for any massage therapy visits in the past year (Model I), for pain-related visits (Model II), and for other health-related visits (Model III). As noted in the Methods section, these three logistic models are multivariable analyses, not a succession of bivariate calculated associations. The results presented in this table—the structural ( $\beta$ ) coefficients and measures of association (ORs)—adjust for all other variables in each model; thus, we refer to them as net effects.

Significant net determinants in Model I were sex, education, IPR, region, physician use, prescription medication use, CAM use, meditation, yoga, alcohol use, sleep, fatigue, anxiety, and life satisfaction. For Model II, significant determinants were sex, education, IPR, region, prescription medication use, CAM use, meditation, yoga, BMI, alcohol use, sleep, fatigue, and anxiety. For Model III, significant determinants were sex, education, IPR, region, prescription medication, CAM use, meditation, yoga, alcohol consumption, fatigue, and anxiety. Of note, despite the large number of exposure variables in these models, many of which were statistically significant net determinants of utilization, in total these models explained only about 20 % of the variance in the past-year use of massage therapy. Clearly, other factors not accounted for in this study must also be driving massage-seeking behavior among adult Americans. One category of exposure variables not assessed in the NHIS dataset was the domain of psychological and psychosocial factors. It has been suggested that such variables, including cognitive and personality indicators and even spirituality, may in part drive usage of complementary and integrative therapies,<sup>61</sup> and perhaps they come into play here, as well.

**Table 1**

Past-year prevalence of massage therapy utilization in the 2022 National Health Interview Survey.<sup>a</sup>

Exposure variables	Past-year prevalence of massage therapy use (%)		
	Any use	For pain	For health
Overall	11.1	6.0	8.5
Age			
< 65	12.4	6.7	9.4
65+	6.8	3.7	5.4
F <sup>b</sup> (1 df) (p-value)	169.0 (p = .00)	79.3 (p = .00)	102.2 (p = .00)
Sex			
Female	13.9	7.6	10.7
Male	8.2	4.3	6.2
F (1 df) (p-value)	138.4 (p = .00)	81.7 (p = .00)	120.5 (p = .00)
Race/ethnicity			
White	12.6	6.9	9.9
Hispanic	8.7	5.0	6.1
Black	7.7	3.4	5.3
Asian	9.7	4.6	7.6
Other/mixed	9.8	6.4	6.9
F (4 df) (p-value)	17.8 (p = .00)	12.8 (p = .00)	21.42 (p = .00)
Education			
< High school	4.0	2.7	2.7
High school/GED	5.5	3.2	4.1
Some college	10.7	6.6	8.3
College degree or more	18.6	9.0	14.2
F (3 df) (p-value)	197.8 (p = .00)	69.7 (p = .00)	148.3 (p = .00)
Family IPR			
0.00-0.99	4.2	2.8	3.1
1.00-1.99	5.5	3.7	4.1
2.00-2.99	7.9	5.5	5.7
3.00-3.99	10.6	6.3	8.1
4.00-4.99	11.9	5.9	8.7
5.00+	17.8	8.4	14.0
F (5 df) (p-value)	103.5 (p = .00)	27.2 (p = .00)	85.9 (p = .00)
Region			
Northeast	11.1	5.6	8.4
Midwest	11.5	6.5	8.7
South	9.5	4.5	7.2
West	13.5	8.4	10.4
F (3 df) (p-value)	14.1 (p = .00)	21.5 (p = .00)	10.3 (p = .00)
Health insurance coverage			
Yes	11.6	6.2	8.9
No	7.1	4.4	5.2
F (1 df) (p-value)	30.3 (p = .00)	9.0 (p = .00)	25.3 (p = .00)
Problems paying medical bills			
Yes	10.4	7.0	8.0
No	11.2	5.9	8.6
F (1 df) (p-value)	1.20 (p = .27)	3.4 (p = .07)	.62 (p = .43)
Saw physician in past 12 months			
Yes	11.8	6.4	9.1
No	7.7	4.2	5.8
F (1 df) (p-value)	56.8 (p = .00)	28.3 (p = .00)	40.3 (p = .00)
Prescription meds in past 12 months			
Yes	12.3	7.0	9.5
No	8.7	3.9	6.5
F (1 df) (p-value)	57.3 (p = .00)	76.1 (p = .00)	47.8 (p = .00)
Saw chiropractor in past 12 months			
Yes	34.2	23.8	27.9
No	8.2	3.8	6.0
F (1 df) (p-value)	1162.8 (p = .00)	1136.9 (p = .00)	1018.9 (p = .00)
Saw acupuncturist in past 12 months			
Yes	47.2	31.3	39.7
No	10.3	5.4	7.8
F (1 df) (p-value)	474.5 (p = .00)	451.8 (p = .00)	461.1 (p = .00)
Saw naturopath in past 12 months			
Yes	51.9	33.5	42.4
No	10.5	5.6	8.0
F (1 df) (p-value)	334.3 (p = .00)	305.0 (p = .00)	308.4 (p = .00)
Practiced meditation in past 12 months			
Yes	23.6	13.1	18.3
No	8.4	4.5	6.4
F (1 df) (p-value)	674.0 (p = .00)	412.4 (p = .00)	548.8 (p = .00)
Practiced guided imagery in past 12 months			
Yes	25.8	16.6	20.8

(continued on next page)

Table 1 (continued)

Exposure variables	Past-year prevalence of massage therapy use (%)		
	Any use	For pain	For health
No	10.1	5.3	7.6
F (1 df) (p-value)	289.9 (p = .00)	244.6 (p = .00)	268.1 (p = .00)
Practiced yoga in past 12 months			
Yes	27.0	14.1	21.0
No	8.1	4.5	6.4
F (1 df) (p-value)	865.1 (p = .00)	428.2 (p = .00)	695.0 (p = .00)
Mental healthcare in past 12 months			
Yes	19.1	12.0	14.6
No	10.0	5.2	7.6
F (1 df) (p-value)	198.9 (p = .00)	195.6 (p = .00)	153.4 (p = .00)
Self-rated health			
Excellent	13.7	5.8	10.6
Good/very good	11.2	6.2	8.5
Fair/poor	6.8	5.3	5.3
F (2 df) (p-value)	44.6 (p = .00)	2.2 (p = .11)	30.4 (p = .00)
Chronic conditions			
At least one	10.8	6.2	8.4
None	11.6	5.7	8.6
F (1 df) (p-value)	2.7 (p = .10)	2.2 (p = .14)	.11 (p = .74)
BMI			
Underweight	10.9	4.1	7.6
Healthy weight	12.7	6.7	9.9
Overweight	11.0	6.1	8.3
Obese	10.1	5.5	7.6
F (3 df) (p-value)	7.6 (p = .00)	2.91 (p = .03)	7.5 (p = .00)
Difficulty walking/climbing steps			
At least some	8.1	6.1	6.3
None	11.8	6.0	9.0
F (1 df) (p-value)	42.7 (p = .00)	.06 (p = .81)	30.4 (p = .00)
Difficulty walking 100 yards			
At least some	7.1	5.2	6.0
None	11.9	6.2	9.0
F (1 df) (p-value)	32.2 (p = .00)	2.71 (p = .10)	17.7 (p = .00)
Moderate physical activity weekly			
Never	6.6	3.9	4.8
1-2 times	12.7	7.0	9.7
3-4 times	15.0	8.1	11.8
5-6 times	16.4	7.8	12.8
7+ times	11.0	5.6	8.2
F (4 df) (p-value)	61.2 (p = .00)	26.2 (p = .00)	49.7 (p = .00)
Cigarette smoking			
Current smoker	6.5	4.4	5.4
Current non-smoker	11.7	6.2	8.9
F (1 df) (p-value)	61.7 (p = .00)	12.9 (p = .00)	35.2 (p = .00)
Alcohol consumption			
Non-drinker	6.3	4.1	4.7
Light drinker	12.4	6.5	9.6
Moderate drinker	14.4	7.1	11.2
Heavy drinker	16.8	9.6	12.5
F (3 df) (p-value)	47.6 (p = .00)	16.8 (p = .00)	45.2 (p = .00)
Hours of sleep each night			
0-6	11.1	6.6	8.4
7-9	11.4	5.9	8.8
10+	6.0	4.2	4.3
F (2 df) (p-value)	10.0 (p = .00)	3.5 (p = .03)	9.6 (p = .00)
Fatigue in past 3 months			
Some/most/all days	12.5	7.2	9.6
Never	8.3	3.6	6.3
F (1 df) (p-value)	76.0 (p = .00)	93.1 (p = .00)	61.5 (p = .00)
Anxiety			
Daily	12.4	8.6	9.3
Weekly	16.2	9.5	12.3
Monthly	14.2	7.2	10.6
A few times per year	10.7	5.2	8.4
Never	6.8	3.2	5.1
F (4 df) (p-value)	49.9 (p = .00)	49.4 (p = .00)	35.9 (p = .00)
Depression			
Daily	7.7	6.4	5.7
Weekly	11.2	7.8	8.9
Monthly	14.1	8.6	10.8
A few times per year	13.8	7.6	10.6
Never	9.5	4.6	7.2
F (4 df) (p-value)	25.0 (p = .00)	24.4 (p = .00)	18.9 (p = .00)
Life satisfaction			

Table 1 (continued)

Exposure variables	Past-year prevalence of massage therapy use (%)		
	Any use	For pain	For health
Very satisfied	12.8	6.1	9.7
Satisfied	10.0	6.0	7.6
Dissatisfied	6.7	5.3	5.5
Very dissatisfied	10.3	7.4	8.4
F (3 df) (p-value)	18.7 (p = .00)	.41 (p = .75)	12.1 (p = .00)

<sup>a</sup> The available N varies minimally by exposure variable due to missing values (N = 26,577 to 26,579 for the three massage therapy use variables).

<sup>b</sup> This is a Wald F statistic, used similarly to a likelihood ratio  $\chi^2$  test but for estimation of differences due to use of complex sampling design commands.

Discussion

To summarize, higher prevalence rates of past-year massage therapist visits overall or to address pain or promote general health were most consistently observed among females and those with some college, with higher IPR, and who live in the West, use prescription medications, visit CAM practitioners, consume alcohol, report fatigue, and experience anxiety. The strongest determinants across the three models were sex, education, CAM use, and, interestingly, alcohol consumption. The prevalence rate overall for the past-year proportion of U.S. adults visiting a massage therapist, in general, are comparable to or a bit above the percentages identified in previous studies. In simpler terms, one out of nine adult Americans reported having had at least one massage therapy appointment in 2021, even in the midst of the COVID-19 pandemic, which translates to roughly 30 million people. Many of these clients, presumably, had multiple visits, although such data were not available in the NHIS. These numbers underscore the affirmation that massage therapy no longer deserves to be considered as marginal, sociologically speaking, and is deserving of continued mainstreaming within the healthcare community.<sup>62</sup>

On the whole, massage use seems to be less a function of health or medical needs than of other factors, notably sociodemographic and behavioral and predilection to utilize CAM. It is interesting, and ought to be instructive to the massage therapy profession and perhaps to healthcare planners, that the highest rates of past-year visits to a massage therapist are among those having visited a chiropractor (34.2 %), an acupuncturist (47.2 %), or a naturopath (51.9 %), or having practiced meditation (23.6 %), guided imagery (25.8 %), or yoga (27.0 %). Additionally, respondents who rated their health as “excellent” (13.7 %) were more likely to visit a massage therapist than those who rated their health as “good” or “very good” (11.2 %) or “fair” or “poor” (6.8 %); and respondents who reported being “very” satisfied with their life (12.8 %) were more likely to have a massage visit than those who reported being “satisfied” (10.0 %), “dissatisfied” (6.7 %), or “very dissatisfied” (10.3 %). These data points essentially tell us who it is that seeks massage, and, while more specific information is not available here, the answer does not appear to be primarily sick or functionally disabled people on medical referral.

Limitations

As with any non-experimental healthcare utilization study, these analyses have inherent limitations that may affect the interpretation of findings. First, the prevalence (cross-sectional) survey design placed restrictions on the ability to infer causation between exposures and outcomes. It could be, for example, that use of massage therapy impacts these exposures rather than these exposures driving utilization; or both could be true, which is possibly so. On the other hand, the wording and content of certain exposure variables (e.g., demographic characteristics and long-term functional statuses) enable us to cautiously infer temporality between some respective exposures and past-year massage therapy use.

**Table 2**  
Determinants of past-year prevalence of massage therapy utilization in the 2022 National Health Interview Survey.

Exposure variables <sup>a</sup>	Past-year massage therapy use					
	Model I: Any use		Model II: For pain		Model III: For health	
	$\beta$ <sup>b</sup> (se)	OR (95 % CI)	$\beta$ (se)	OR (95 % CI)	$\beta$ (se)	OR (95 % CI)
Age	-.00 (.00)	1.00 (.99-1.00)	-.00 (.00)	1.00 (.99-1.00)	.00 (.00)	1.00 (1.00-1.01)
Sex						
Male		1.0		1.0		1.0
Female	.45 (.06)	1.57 (1.40-1.77)	.43 (.08)	1.53 (1.32-1.78)	.46 (.06)	1.59 (1.40-1.80)
Race/ethnicity						
White		1.0		1.0		1.0
Hispanic	.09 (.08)	1.09 (.93-1.28)	.02 (.11)	1.02 (.82-1.28)	-.01 (.10)	.99 (.82-1.19)
Black	-.02 (.08)	.98 (.81-1.20)	-.18 (.15)	.83 (.62-1.11)	-.15 (.12)	.86 (.69-1.09)
Asian	-.21 (.12)	.81 (.65-1.02)	-.32 (.16)	.73 (.53-1.00)	-.16 (.13)	.85 (.66-1.10)
Other/mixed	-.17 (.18)	.85 (.59-1.21)	-.09 (.22)	.91 (.60-1.40)	-.23 (.20)	.80 (.54-1.18)
Education						
High school/GED		1.0		1.0		1.0
< High school	-.00 (.17)	1.00 (.71-1.40)	.10 (.20)	1.10 (.74-1.64)	-.14 (.21)	.87 (.58-1.32)
Some college	.34 (.09)	1.40 (1.17-1.67)	.41 (.12)	1.50 (1.19-1.89)	.37 (.09)	1.45 (1.20-1.75)
College degree	.68 (.09)	1.97 (1.66-2.34)	.52 (.11)	1.68 (1.34-2.10)	.64 (.10)	1.89 (1.57-2.29)
Family IPR	.09 (.01)	1.09 (1.08-1.11)	.06 (.01)	1.06 (1.03-1.08)	.09 (.01)	1.10 (1.07-1.12)
Region						
West		1.0		1.0		1.0
Northeast	-.27 (.09)	.77 (.65-.91)	-.45 (.11)	.64 (.52-.79)	-.26 (.09)	.77 (.64-.92)
Midwest	-.22 (.08)	.80 (.69-.93)	-.32 (.10)	.73 (.60-.88)	-.20 (.08)	.82 (.69-.96)
South	-.21 (.07)	.81 (.71-.93)	-.50 (.10)	.61 (.51-.74)	-.15 (.08)	.86 (.74-1.00)
Health insurance						
No		1.0		1.0		1.0
Yes	-.11 (.12)	.89 (.70-1.13)	-.20 (.14)	0.82 (.62-1.08)	-.11 (.14)	0.90 (.68-1.18)
Medical bill problems						
No		1.0		1.0		1.0
Yes	.03 (.10)	1.02 (.84-1.25)	-.02 (.12)	.98 (.77-1.23)	.07 (.11)	1.07 (.86-1.33)
Physician use						
No		1.0		1.0		1.0
Yes	.20 (.08)	1.22 (1.05-1.42)	.04 (.11)	1.04 (.85-1.29)	.16 (.09)	1.17 (.99-1.39)
Prescription meds						
No		1.0		1.0		1.0
Yes	.19 (.07)	1.21 (1.05-1.38)	.33 (.09)	1.39 (1.16-1.66)	.16 (.08)	1.18 (1.01-1.37)
CAM therapy use <sup>c</sup>						
No		1.0		1.0		1.0
Yes	1.64 (.06)	5.13 (4.59-5.74)	1.83 (.07)	6.26 (5.49-7.14)	1.66 (.06)	5.24 (4.64-5.92)
Meditation						
No		1.0		1.0		1.0
Yes	.59 (.07)	1.81 (1.59-2.06)	.45 (.08)	1.57 (1.33-1.84)	.54 (.07)	1.72 (1.50-1.98)
Guided imagery						
No		1.0		1.0		1.0
Yes	-.00 (.09)	1.00 (.83-1.19)	.21 (.11)	1.23 (.99-1.52)	.04 (.10)	1.04 (.86-1.27)
Yoga						
No		1.0		1.0		1.00
Yes	.64 (.06)	1.90 (1.68-2.16)	.52 (.08)	1.67 (1.43-1.95)	.62 (.07)	1.86 (1.62-2.12)
Mental healthcare						
No		1.0		1.0		1.0
Yes	.15 (.07)	1.16 (1.00-1.34)	.17 (.09)	1.19 (1.00-1.42)	.14 (.08)	1.15 (.98-1.35)
Self-rated health						
Fair/poor		1.0		1.0		1.0
Good/very good	.07 (.11)	1.07 (.87-1.32)	-.09 (.12)	.92 (.72-1.17)	.02 (.12)	1.02 (.80-1.29)
Excellent	.18 (.12)	1.19 (.93-1.52)	-.16 (.15)	.85 (.64-1.15)	.16 (.14)	1.18 (.90-1.54)
Chronic conditions	-.02 (.03)	.98 (.93-1.03)	.00 (.03)	1.00 (.94-1.07)	-.02 (.03)	.98 (.92-1.03)
BMI						
Healthy weight		1.0		1.0		1.0
Overweight	-.08 (.24)	.92 (.58-1.48)	-.65 (.29)	.52 (.29-.92)	-.29 (.29)	.75 (.42-1.32)
Overweight	.03 (.06)	1.03 (.91-1.17)	.06 (.09)	1.06 (.89-1.26)	-.01 (.07)	1.00 (.87-1.14)
Obese	.10 (.07)	1.11 (.97-1.27)	-.05 (.09)	.95 (.80-1.13)	.10 (.07)	1.10 (.95-1.27)
Difficulty with steps						
None		1.0		1.0		1.0
At least some	-.01 (.10)	.99 (.81-1.21)	.20 (.13)	1.22 (.95-1.57)	-.07 (.11)	.93 (.75-1.15)
Difficulty walking						
None		1.0		1.0		1.0
At least some	-.02 (.12)	.98 (.77-1.25)	.03 (.15)	1.03 (.77-1.37)	.10 (.13)	1.10 (.85-1.44)
Physical activity	.01 (.01)	1.01 (1.00-1.03)	-.00 (.01)	1.00 (.98-1.02)	.01 (.01)	1.01 (1.00-1.03)
Cigarettes						
Non-smoker		1.0		1.0		1.0
Smoker	-.17 (.10)	.84 (.70-1.02)	-.03 (.12)	.97 (.77-1.23)	-.05 (.11)	.95 (.77-1.18)
Alcohol						
Non-drinker		1.0		1.0		1.0
Light drinker	.34 (.08)	1.41 (1.22-1.64)	.15 (.10)	1.16 (.96-1.40)	.39 (.08)	1.47 (1.27-1.72)

(continued on next page)

Table 2 (continued)

Exposure variables <sup>a</sup>	Past-year massage therapy use					
	Model I: Any use		Model II: For pain		Model III: For health	
	$\beta^b$ (se)	OR (95 % CI)	$\beta$ (se)	OR (95 % CI)	$\beta$ (se)	OR (95 % CI)
Moderate drinker	.53 (.09)	1.71 (1.44-2.02)	.32 (.11)	1.38 (1.11-1.71)	.57(.09)	1.78 (1.47-2.14)
Heavy drinker	.60 (.11)	1.81 (1.47-2.23)	.41 (.13)	1.51 (1.16-1.96)	.52 (.11)	1.68 (1.34-2.09)
Unknown	.74 (.30)	2.11 (1.17-3.80)	.50 (.37)	1.64 (.80-3.38)	.65 (.34)	1.92 (.98-3.75)
Hours of sleep	-.05 (.02)	.95 (.91-.99)	-.07 (.03)	.93 (.88-.98)	-.05 (.03)	.95 (.91-1.00)
Fatigue						
Never		1.0		1.0		1.0
At least some days	.17 (.06)	1.18 (1.05-1.34)	.30 (.09)	1.35 (1.14-1.61)	.21 (.07)	1.23 (1.07-1.41)
Anxiety						
Never		1.0		1.0		1.0
Monthly or less	.16 (.09)	1.18 (1.01-1.37)	.07 (.10)	1.07 (.88-1.30)	.12 (.08)	1.12 (.95-1.32)
Weekly or daily	.25 (.07)	1.29 (1.12-1.48)	.28 (.09)	1.32 (1.12-1.56)	.22 (.08)	1.25 (1.07-1.46)
Depression						
Monthly or less		1.0		1.0		1.0
Weekly or daily	-.13 (.12)	.88 (.70-1.11)	-.01 (.12)	.99 (.78-1.27)	-.02 (.12)	.98 (.77-1.24)
Life satisfaction						
< Very satisfied		1.0		1.0		1.0
Very satisfied	.13 (.05)	1.14 (1.02-1.27)	.03 (.07)	1.03 (.89-1.19)	.10 (.06)	1.11 (.98-1.25)
Pseudo R <sup>2</sup> <sup>d</sup>	.20		.19		.19	
N	22,849		22,847		22,849	

<sup>a</sup> The reference category for each respective exposure variable in the logistic regressions is indicated by a single entry of 1.00 in the OR columns without any other statistics reported.

<sup>b</sup> Multivariable logistic coefficient.

<sup>c</sup> A composite of chiropractic, acupuncture, and naturopathy use.

<sup>d</sup> Estimated using weights but no other design features.

Second, while use of NHIS data enabled examination of an exceptionally wide range of exposure variables across several categories—more than any previous population study of massage—the psychosocial traits or characteristics of clients and practitioners (e.g., self-efficacy, stress, attitudes and beliefs, personality, spirituality) known to influence the use of other complementary or integrative therapies<sup>63,64</sup> were not assessed in this survey. This might have made a difference in these findings, as personal characteristics of massage therapists, including their interpersonal communication style and practice environment, have been hypothesized to create clinical expectations that influence the outcome of client sessions.<sup>65</sup> In turn, presumably, this could result in repeat visits and positive word of mouth for respective therapists.

Third, the sparsity of comparable national population data on massage and its determinants makes it difficult to infer conclusively whether patterns of use have shifted upward or downward over the past decades. Based on prior studies, however, these data do suggest a modest increase in utilization. How this will further evolve with the shifting demographics of the U.S., the aging of the population, and continued changes in the healthcare environment, in healthcare-seeking patterns, and in reimbursement norms remains an open question.

Fourth, the COVID-19 pandemic was still ongoing, yet winding down, during the NCHS data collection effort in 2022. Yet there is no conclusive way at present to determine if this served to impact on the massage therapy utilization rates reported here. Health services research on the utilization of other healthcare modalities suggests that a suppressive effect of the pandemic on utilization rates during the first two years<sup>66</sup> had begun to wane in 2021, but this might reflect an increase in the need for ambulatory care visits related to persistent cases.<sup>67</sup> While data collection was not undertaken until 2022, the NCHS inquired about massage visits that had occurred in 2021, but even if the rate of massage therapy visits were still suppressed somewhat, then this would suggest that the “true” prevalence of massage therapist visits may be even higher than presented in the present findings. Again, though, this is only speculation.

### Implications

This study has implications for massage therapists, for our

understanding of what predicts use of massage therapy, for health services research, and for medical practitioners, administrators, and policymakers. First, as noted, we question whether it is helpful or practical to continue categorizing massage therapists as “alternative” practitioners, with all the baggage that this label may convey, notwithstanding their classification as such in previous utilization studies. The prevalence of use of their services exceeds the rate for mainstream allied health professionals such as physical and occupational therapists.<sup>68</sup> This observation should be heartening for the professional community of licensed massage therapists who continue to struggle with perceived marginality in some professional settings and endeavor to gain recognition of their legitimacy and acceptance of their professional status and expertise.<sup>69</sup> While this is in large part a semantic issue, it also may be significant for the ongoing branding and professionalization of massage therapy in the evolving healthcare environment.

Second, while pain and functional limitations are significant determinants of massage therapy use, indicators of chronic health conditions are not as predictive as might be expected. People also seek out massage for reasons other than for addressing health challenges, a finding that may seem counterintuitive to mainstream medical practitioners. Notably, massage is more frequently sought by those who utilize CAM in general, as well as by people who practice meditation, guided imagery, and yoga. This would seem to suggest that regular massage is also utilized as part of a wellness-seeking lifestyle or due to interest in mind-body healing, as is the case with other complementary or integrative therapies,<sup>70</sup> and is not solely engaged through health-directed referral as for, say, physical therapists. Receiving regular massage may be viewed by some clients more as a self-actualization or even spiritual pursuit than purely as a medically- or functionally-driven therapy. This may be reinforced when clients develop a longstanding relationship with a respective therapist whom they see regularly for many years, more akin to a psychotherapeutic relationship than a time-limited referral to a medical practitioner or an allied health professional. In such instances, as in all long-term therapy, both parties must be on guard against the emergence of transference, countertransference, dual relationships, and other inappropriate threats to maintaining professional boundaries.<sup>71</sup> Not only do these challenges raise ethical issues, but they may damage the therapeutic relationship between client and practitioner and thus may scuttle the effectiveness and much of the positive

therapeutic benefit of receiving regular massage.<sup>72</sup>

Third, this study exemplifies the continuing importance of investigating utilization patterns of non-mainstream forms of medical or health-related therapy. The present findings suggest that this area of investigation, which began in earnest over 30 years ago with publication of the first national survey data on “unconventional medicine” use in the U.S.,<sup>31</sup> might be fruitfully expanded to other forms of bodywork or even energy work, modalities which continue to experience perceived marginality even within complementary and integrative medicine. What might be looked on by the mainstream medical community as unconventional or marginal may be quite conventional after all, if one defines “conventional” as normative, as indicated by substantial prevalence rates of utilization. These findings on the use of massage therapy exemplify this point.

Fourth, for physicians, healthcare administrators, and health policymakers, as well, the findings presented here may be informative, even critical, if one affirms that these professionals ought not be blind to the fullest picture possible of healthcare-seeking behavior among patients. Utilization of non-medical therapies—whether these are provided by complementary or integrative practitioners, by allied health professionals, or by massage therapists or other types of bodyworkers—is basic information that one’s primary care provider ought to be aware of in order to best exercise their gatekeeper role,<sup>73</sup> whether or not the provider personally approves of use of the modality or believes in its efficacy. This is because use of such therapies may impact on a respective patient’s (a) likelihood to seek their care for somatic and psychiatric symptoms and illness, (b) compliance with conventional medical care, and (c) overall physical and mental health status and general well-being. Without having reliable utilization data, clinicians may be missing therapeutic encounters which could contraindicate certain conventional treatment, interfere with accurate evaluation of such treatment, or otherwise interact with conventional care and affect its results, for good or bad and in ways that may be currently unknown. A healthy patient-clinician relationship should be founded in openness and accountability,<sup>74</sup> in both directions, and it is in everyone’s best interest for physicians, for one, to be aware of everything that one’s patients are doing for their health, especially pursuits that may be considered somewhat esoteric<sup>75</sup> (pp. 109-110). This applies at two levels: the individual practitioner-patient relationship and, as in the present study, patterns of use across the population as a whole. Both forms of information are indispensable.

## Conclusions

Massage therapy is a commonly utilized therapeutic modality in the U.S. According to the most recent NHIS data, from 2022, 11.1 % of adult Americans used the services of a massage therapist just in the past year. Further, 6.0 % received massage for pain and 8.5 % in order to restore their health. The highest rates of use were found among socioeconomically advantaged individuals and users of CAM. By now, it may be appropriate to acknowledge massage therapists as providers of a widely used and increasingly mainstream category of therapy and as worthy of acceptance by the medical orthodoxy as professional colleagues. Massage therapy is utilized both through formal therapeutic referrals (e.g., for existing somatic or functional complaints) and by individuals seeking to restore their health or attain a higher state of wellness. To extend this line of research, future studies of the determinants of massage therapy use might focus on potential psychosocial predictors, of the type that have been associated in prior studies with use of other therapies outside of the mainstream of Western medical specialties.

## Funding

None.

## ORCID iD authorship contribution statement

**Jeff Levin:** Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Matt Bradshaw:** Writing – original draft, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

## References

- Fritz S, Fritz L. *Mosby’s Fundamentals of Therapeutic Massage*. Seventh Edition. St. Louis, MO: Mosby; 2021.
- Seffinger MA, ed. *Foundations of Osteopathic Medicine: Philosophy, Science, Clinical Applications, and Research*. Fourth Edition. Philadelphia: Wolters Kluwer; 2018.
- Peregoy JA, Clarke TC, Jones LI, Stussman BJ, Nahin RL. Regional variation in use of complementary health approaches by U.S. adults. *NCHS Data Brief*. 2014;146:1–8.
- Fritz S. *Mosby’s Fundamentals of Therapeutic Massage*. Third Edition. St. Louis: MO: Mosby; 2004.
- Kitaeff R. Nonpharmacological control of pain. In: Pizzorno JE, Murray MT, eds. *Textbook of Natural Medicine*. Fifth Edition. St. Louis: Elsevier; 2021:339–345.
- Kennedy AB, Cambron JA, Sharpe PA, Travillian RS, Saunders RP. Clarifying definitions for the massage therapy profession: The results of the best practices symposium. *Int J Ther Massage Bodywork*. 2016;9(3):15–26. <https://doi.org/10.3822/ijtm.v9i3.312>.
- Field T. Massage therapy. *Med Clin North Am*. 2002;86(1):163–171. [https://doi.org/10.1016/s0025-7125\(03\)00078-6](https://doi.org/10.1016/s0025-7125(03)00078-6).
- Callaway K, Burgess S. A history of massage. In: Casanella L, Stelfox D, eds. *Foundations of Massage*. Third Edition. Sydney, Australia: Elsevier/Churchill Livingstone; 2010:11–21.
- Benjamin PJ. Brush up on the history of your profession: Ten essentials every massage therapist should know. *Massage Ther J*. 2015;54(3):34–40. <https://www.amtamassage.org/publications/massage-therapy-journal/history-of-massage/>.
- Walkley S. When the body leads the mind: Perspectives on massage therapy in the United States. In: Oths KS, Hinojosa SV, eds. *Healing by Hand: Manual Medicine and Bonesetting in Global Perspective*. Walnut Creek, CA: AltaMira Press; 2004:23–42.
- Berman BM, Larson DB, eds. *Alternative Medicine: Expanding Medical Horizons: A Report to the National Institutes of Health on Alternative Medical Systems and Practices in the United States*. Washington, DC: U.S. Government Printing Office; 1994. NIH Pub. No. 94-066.
- National Center for Complementary and Alternative Medicine. *Expanding Horizons of Healthcare Strategic Plan 2005-2009*. Washington, DC: U.S. Department of Health and Human Services; 2004. NIH Pub. No. 04-5568.
- National Center for Complementary and Integrative Health NCCIH Strategic Plan FY 2021–2025: mapping a pathway to research on whole person health. NCCIH. D511; 2021. <https://www.nccih.nih.gov/about/nccih-strategic-plan-2021-2025>.
- Fritz S, Chaitow L, Hymel GM. *Clinical Massage in the Healthcare Setting*. St. Louis: Mosby; 2008.
- Estrin Dashe AA. Integrating massage, chiropractic, and acupuncture in university clinics: a guided student observation. *Int J Ther Massage Bodywork*. 2012;5(2):3–8. <https://doi.org/10.3822/ijtm.v5i2.162>.
- Salvo SG. Professional standards: scope of practice, assessments, treatment planning, informed consent, and documentation. In: Salvo SG, ed. *Massage Therapy: Principles and Practice*. Seventh Edition. St. Louis: Elsevier; 2023:178–199.
- McCubbin T, Kempe KL, Beck A. Complementary and alternative medicine in an integrated health care delivery system: Users of chiropractic, acupuncture, and massage services. *Perm J*. 2017;21:16–172. <https://doi.org/10.7812/TPP/16-172>.
- Braun MB, Simonson S. *Welcome to the world of massage therapy! In: Introduction to Massage Therapy*. Baltimore: Lippincott Williams and Wilkins; 2014:1–29.
- Smith JM, Sullivan SJ, Baxter GD. Massage therapy: more than a modality. *N Z J Physiother*. 2010;38(2):44–51.
- Sherman KJ, Cherkin DC, Kahn J, Erro J, Hrbek A, Deyo RA, Eisenberg DM. A survey of training and practice patterns of massage therapists in two US states. *BMC Complement Med Ther*. 2005;5:13. <https://doi.org/10.1186/1472-6882-5-13>.
- Stillerman E, ed. *Modalities for Massage and Bodywork*. Second Edition. St. Louis: Elsevier; 2016.
- Porcino AJ, Boon HS, Page SA, Verhoef MJ. Meaning and challenges in the practice of multiple therapeutic massage modalities: a combined methods study. *BMC Complement Altern Med*. 2011;11:75. <https://doi.org/10.1186/1472-6882-11-75>.
- Knaster M. *Discovering the Body’s Wisdom*. New York, NY: Bantam Books; 1996.
- Micozzi MS. Massage and manual therapies: principles of bodywork and manual healing. In: Micozzi MS, ed. *Fundamentals of Alternative, Complementary, and Integrative Medicine*. Sixth Edition. St. Louis: Elsevier; 2019:206–231.
- Buford D. Mind, body and spirit: the spiritual consciousness of massage and bodywork. *Massage and bodywork* (February/March, 2002). <https://www.massagetherapy.com/articles/mind-body-and-spirit>.
- Ulrich A, Evron L, Ostenfeld-Rosenthal A. Patients’ views of CAM as spiritual practice. *Complement Ther Clin Pract*. 2011;17(4):221–225. <https://doi.org/10.1016/j.ctcp.2010.12.001>.
- Fortune LD, Hymel GM. Creating integrative work: a quality study of how massage therapists work with existing clients. *J Bodyw Mov Ther*. 2015;19(1):P25–P34. <https://doi.org/10.1016/j.jbmt.2014.01.005>.



28. Salvo SG. The therapeutic relationship: ethics, cultural competencies, and boundaries. In: Salvo SG, ed. *Massage Therapy: Principles and Practice*. Seventh Edition. St. Louis: Elsevier; 2023:15–41.
29. 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. <https://doi.org/10.1016/j.ctcp.2013.11.001>.
30. Sundberg T, Cramer H, Sibbritt D, Adams J, Lauche R. Prevalence, patterns, and predictors of massage practitioner utilization: Results of a US nationally representative survey. *Musculoskelet Sci Pract*. 2017;32:31–37. <https://doi.org/10.1016/j.msksp.2017.07.003>.
31. Eisenberg DM, Kessler RC, Foster C, Norlock FE, Calkins DR, Delbanco TL. Unconventional medicine in the United States—prevalence, costs, and patterns of use. *N Engl J Med*. 1993;328(4):246–252. <https://doi.org/10.1056/nejm199301283280406>.
32. Eisenberg DM, Davis RB, Ettner SL, Appel S, Wilkey S, Van Rompay M, Kessler RC. Trends in alternative medicine in the United States, 1990–1997: results of a follow-up national survey. *JAMA*. 1998;280(18):1569–1575. <https://doi.org/10.1001/jama.280.18.1569>.
33. Conboy L, Patel S, Kaptchuk TJ, Gottlieb B, Eisenberg D, Acevedo-Garcia D. Sociodemographic determinants of the utilization of specific types of complementary and alternative medicine: An analysis based on a nationally representative survey sample. *J Altern Complement Med*. 2006;11(6):977–994. <https://doi.org/10.1089/acm.2005.11.977>.
34. Moyer CA, Rounds J, Hannum JW. A meta-analysis of massage therapy research. *Psychol Bull*. 2004;130(1):3–18. <https://doi.org/10.1037/0033-2909.130.1.3>.
35. Packheiser J, Hartmann H, Fredriksen K, Gazzola V, Keyzers C, Michon F. A systematic review and multivariate meta-analysis of the physical and mental health benefits of touch interventions. *Nat Hum Behav*. 2024. <https://doi.org/10.1038/s41562-024-01841-8>.
36. Sefton JM, Dexheimer J, Munk N, et al. A research agenda for the massage therapy profession: A report from the Massage Therapy Foundation. *Int J Ther Massage Bodyw*. 2020;13(4):42–46. <https://doi.org/10.3822/IJTMB.V13I4.595>.
37. Cates C, Jordan K, Munk N, Farrand R, Kennedy AB, Groninger H. Massage therapy in palliative care populations: a narrative review of literature from 2012 to 2022. *Ann Palliat Med*. 2023;12(5):963–975. <https://doi.org/10.21037/apm-23-126>.
38. Grimshaw JM, Eccles MP, Lavis JN, Hill SJ, Squires JE. Knowledge translation of research findings. *Implement Sci*. 2021;7:50. <https://www.implementationscience.com/content/7/1/50>.
39. Porcino AJ, Boon HS, Page SA, Verhoef MJ. Exploring the nature of therapeutic massage and bodywork practice. *Int J Ther Massage Bodyw*. 2013;6(1):15–24. <https://doi.org/10.3822/ijtm.v6i1.168>.
40. Perlman A, Dreusicke M, Keever T, Ali A. Perceptions of massage therapists participating in a randomized controlled trial. *Int J Ther Massage Bodyw*. 2015;8(3):10–15. <https://doi.org/10.3822/ijtm.v8i3.278>.
41. Porcino A. Not birds of a feather: Case reports, case studies, and single-subject research. *Int J Ther Massage Bodyw*. 2016;9(3):1–2. <https://doi.org/10.3822/ijtm.v9i3.334>.
42. Munk N, Boulanger K. Adaptation of the CARE guidelines for therapeutic massage and bodywork publications: efforts to improve the impact of case reports. *Int J Ther Massage Bodyw*. 2014;7(3):32–40. <https://doi.org/10.3822/ijtm.v7i3.251>.
43. Su D, Li L. Trends in the use of complementary and alternative medicine in the United States: 2002–2007. *J Health Care Poor Underserv*. 2011;22(1):295–309. <https://doi.org/10.1353/hpu.2011.0002>.
44. Licciardone JC. Demographic characteristics associated with utilization of noninvasive treatments for chronic low back pain and related clinical outcomes during the COVID-19 pandemic in the United States. *J Am Board Fam Pract*. 2021;34(Suppl):S77–S84. <https://doi.org/10.3122/jabfm.2021.S1.200352>.
45. Escoto KH, Milbury K, Nguyen N, Cho D, Roberson C, Wetter D, McNeill LH. Use of complementary health practices in a church-based African American cohort. *J Altern Complement Med*. 2018;24(12):1204–1213. <https://doi.org/10.1089/acm.2018.0076>.
46. Ladanyi S, Adams J, Sibbritt D. Massage therapy utilisation by Australian women: prevalence and determinants. *J Bodyw Mov Ther*. 2020;24(3):29–37. <https://doi.org/10.1016/j.jbmt.2020.02.006>.
47. Best TM, Crawford SK. Massage and postexercise recovery: the science is emerging. *Br J Sports Med*. 2017;51(19):1386–1387. <https://doi.org/10.1136/bjsports-2016-096528>.
48. Burton MS. Complementary and alternative medicine in rehabilitation. *Curr Sports Med Rep*. 2019;18(8):283–284. <https://doi.org/10.1249/jsr.0000000000000617>.
49. Willison KD. *Massage Therapy Visits by the Aged: Testing a Modified Anderson Model*. Toronto, Canada: Graduate Department of Public Health Sciences, University of Toronto; 2009.
50. *25 Reasons to Get a Massage*. AMTA: American Massage Therapy Association; 2022. <https://www.amtamassage.org/find-massage-therapist/25-reasons-to-get-a-massage>.
51. Field T. Massage therapy research review. *Int J Psychol Res Rev*. 2021;4:45. <http://doi.org/10.28933/ijpr-2020-12-0805>.
52. Field T. Massage therapy research review. *Complement Ther Clin Pract*. 2016;24:19–31. <https://doi.org/10.1016/j.ctcp.2016.04.005>.
53. Fritz S, Fritz L. *Mosby's Essential Sciences for Therapeutic Massage: Anatomy, Physiology, Biomechanics, and Pathology*. St. Louis: Elsevier; 2021.
54. Field T. Massage therapy research review. *Complement Ther Clin Pract*. 2014;20(4):224–229. <https://doi.org/10.1016/j.ctcp.2014.07.002>.
55. Levin J, Taylor RJ, Chatters LM. Prevalence and sociodemographic correlates of spiritual healer use: findings from the National Survey of American Life. *Complement Ther Med*. 2011;19(2):63–70. <https://doi.org/10.1016/j.ctim.2011.02.001>.
56. Levin J. Prevalence and religious predictors of healing prayer use in the USA: findings from the Baylor Religion Survey. *J Relig Health*. 2016;55(4):1136–1158. <https://doi.org/10.1007/s10943-016-0240-9>.
57. United States Census Bureau. *National Health Interview Survey: 2022 CAPI Manual for NHIS Field Representatives*. HIS-100C (December, 2021). [https://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Survey\\_Questionnaires/NHIS/2022/fmanual-508.pdf](https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Survey_Questionnaires/NHIS/2022/fmanual-508.pdf).
58. National Center for Health Statistics. *National Health Interview Survey: 2022 Survey Description* (June, 2023). [https://ftp.cdc.gov/pub/Health\\_Statistics/NCHS/Dataset\\_Documentation/NHIS/2022/srvydesc-508.pdf](https://ftp.cdc.gov/pub/Health_Statistics/NCHS/Dataset_Documentation/NHIS/2022/srvydesc-508.pdf).
59. Agresti A. *Categorical Data Analysis*. New York, NY: John Wiley & Sons; 2012. Third Edition.
60. Harrell Jr FW. *Regression Modeling Strategies: With Applications to Linear Models, Logistic and Ordinal Regression, and Survival Analysis*. New York, NY: Springer; 2015. Second Edition.
61. Thomson P, Jones J, Browne M, Leslie SJ. Psychosocial factors that predict why people use complementary and alternative medicine and continue with its use: a population based study. *Complement Ther Clin Pract*. 2014;20(4):302–310. <https://doi.org/10.1016/j.ctcp.2014.09.004>.
62. Ruggie M. *Marginal to Mainstream: Alternative Medicine in America*. Cambridge, UK: Cambridge University Press; 2004.
63. Thomson P, Jones J, Browne M, Leslie SJ. Psychosocial factors that predict why people use complementary and alternative medicine and continue with its use: a population based study. *Complement Ther Med*. 2014;20(4):302–310. <https://doi.org/10.1016/j.ctcp.2014.09.004>.
64. Sirois FM. Provider-based complementary and alternative medicine use among three chronic illness groups: associations with psychosocial factors and concurrent use of conventional health-care services. *Complement Ther Med*. 2008;16(2):73–80. <https://doi.org/10.1016/j.ctim.2007.03.006>.
65. Boulanger K, Campo S. Are personal characteristics of massage therapists associated with their clinical, educational, and interpersonal behaviors? *Int J Ther Massage Bodyw*. 2013;6(3):25–34. <https://doi.org/10.3822/ijtm.v6i3.220>.
66. Roy CM, Bollman EB, Carson LM, Northrop AJ, Jackson EF, Moresky RT. Assessing the indirect effects of COVID-19 on healthcare delivery, utilization and health outcomes: A scoping review. *Eur J Public Health*. 2021;31(3):634–640. <https://doi.org/10.1093/eurpub/ckab047>.
67. Mafi JN, Craff M, Vangala S. Trends in US ambulatory care patterns during the COVID-19 pandemic, 2019–2021. *JAMA*. 2022;327(3):237–247. <https://doi.org/10.1001/jama.2021.24294>.
68. Sandstrom R. Utilization of ambulatory physical therapy and occupational therapy by the United States population, 2009–2013. *J Allied Health*. 2017;46(4):225–231.
69. Smith DM, Smith JM, Baxter GD, Spronken-Smith R. The drive for legitimization of massage therapy in New Zealand. *Int J Ther Massage Bodyw*. 2012;5(4):21–29. <https://doi.org/10.3822/ijtm.v5i4.196>.
70. Spence M, Ribeaux P. Complementary and alternative medicine: Consumers in search of wellness or an expression of need by the sick? *Psychol Market*. 2004;21(2):113–139. <https://doi.org/10.1002/mar.10118>.
71. Lavery ME, Salvo SG. The therapeutic relationship: Ethics, boundaries, and cultural competencies. In: Salvo SG, ed. *Massage Therapy: Principles and Practice*. Sixth Edition. St. Louis, MO: Elsevier; 2020:15–36.
72. Smith NK, Ryan C. *Communication and the therapeutic relationship*. In: *Traumatic Scar Tissue Management: Massage Therapy Principles, Practice and Protocols*. Edinburgh, UK: Handspring Publishing; 2016:163–174.
73. Jong MC, van de Vijver L, Busch M, Fritsma J, Seldenrijk R. Integration of complementary and alternative medicine in primary care: What do patients want? *Patient Educ Couns*. 2012;89(3):417–422. <https://doi.org/10.1016/j.pec.2012.08.013>.
74. Hsu C, Cherkin DC, Hoffmeyer S, Sherman KJ, Phillips WR. Patient and clinician openness to including a broader range of healing options in primary care. *Ann Fam Med*. 2011;9(5):447–453. <https://doi.org/10.1370/afm.1289>.
75. Levin J. Esoteric healing traditions: a conceptual overview. *Explore (NY)*. 2008;4(2):101–112.