Trends in Yoga, Tai Chi, and Qigong Use Among US Adults, 2002–2017

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Objectives. To examine the characteristics and temporal trends of yoga, tai chi, and qigong (YTQ) use among US adults.

Methods. Using the 2002, 2007, 2012, and 2017 National Health Interview Surveys, we examined the prevalence, patterns, and predicting factors of YTQ use by Taylor series linear regression, the Wald F χ^2 test, and multivariable logistic regression models (n = 116 404).

Results. YTQ use increased from 5.8% in 2002 to 14.5% in 2017 ($P \leq .001$). Only 6.6% of YTQ users were referred by their medical doctors, and approximately one third disclosed their use of YTQ to medical professionals. Reasons for using YTQ included (1) YTQ was beneficial, (2) YTQ focused on the whole person, and (3) YTQ was natural. Acute and chronic pain, arthritis, and depression were the top 3 medical conditions for which people used YTQ the most.

Conclusions. YTQ use is increasing substantially, mainly because of its natural and holistic healing approach toward health and chronic diseases. Future studies aiming to explore how to best integrate YTQ into the current health care system are warranted. (*Am J Public Health.* 2019;109:755–761. doi:10.2105/AJPH.2019.304998)

See also Vergeer, p. 662, and Galea and Vaughan, p. 672.

Yoga, tai chi, and qigong (YTQ) are mind–body therapies that have been widely used for health promotion and disease prevention in ancient China and India for thousands of years. In general, YTQ share common components that integrate physical movements (i.e., physical postures, or asana), breathing exercises (i.e., deep belly breathing, or pranayama), and meditation (i.e., mental focus or regulation) for physical and psychological health, self-awareness, and spiritual growth.[1,2]

Emerging evidence suggests that there are substantial health benefits from regularly practicing YTQ. For example, studies have demonstrated that YTQ can reduce pain, improve mental health, improve balance, prevent falls, and reduce symptoms related to arthritis and fibromyalgia and that these therapies may enhance a healthy lifestyle and contribute to healthy aging among middle-aged and older adults.[3–9] The promising results regarding the efficacy and effectiveness of YTQ have provided a solid foundation for more people to turn to YTQ in the United States in the past few decades.

Although there are indications that the popularity of YTQ is increasing, only a few studies have provided detailed information about the prevalence, patterns of use, and predicting factors for YTQ use. Even fewer studies have examined the temporal trends of YTQ use in the United States. Among previous studies that have provided sporadic information about YTQ use among US adults, Birdee et al.[10] and Cramer et al.[11] described the characteristics of yoga use. Lauche et al.[12] briefly reported the characteristics of tai chi and qigong use. Rhee et al.[3] described the prevalence and racial/ethnic differences regarding YTQ use among adults with moderate mental health issues. Clarke et al.[13] summarized basic demographics of YTQ use within the context of overall complementary and alternative medicine (CAM) use. To our knowledge, no study has systematically examined the temporal trends and changing characteristics of YTQ use among US adults over the past 15 years at the national level.[14]

To address this knowledge gap and to inform practice, education, and future directions of YTQ research, we aimed to (1) provide updated information about the changes in prevalence of YTQ use, (2) describe the patterns of and reasons for using YTQ to treat specific medical conditions, and (3) identify the predicting factors associated with YTQ use by using multiyear nationally representative samples of US adults, spanning 15 years.

METHODS

We used 2002, 2007, 2012, and 2017 National Health Interview Survey (NHIS) data. NHIS is a cross-sectional survey fielded by the Centers for Disease Control and Prevention's National Center for Health Statistics. Generally, NHIS collects data using 4 main components: the Household, Family, Sample Child, and Sample Adult Core surveys. In 2002, 2007, and 2012, a supplemental Adult Complementary and Alternative Medicine file was added to the regular NHIS, which provided detailed information about various CAM use among US adults

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nationwide.[15] In 2017, the use of CAM among adults was included as part of the Sample Adult file.

Measures

We examined the prevalence and temporal trends of YTQ use, medical conditions for which YTQ were commonly used (i.e., pain conditions, including back pain, neck pain, and joint pain or stiffness; headache or migraine; arthritis or fibromyalgia; and mental health issues), and different reasons for using YTQ. We defined YTQ users as sample adults who stated that they practiced yoga, tai chi, or qigong during the past 12 months. Subsamples of adults who used yoga, tai chi, or qigong as 1 of their top 3 CAM therapies and for specific health problems or medical conditions answered several further questions about their use of YTQ. Questions regarding medical conditions for which YTQ were commonly used, reasons for using YTQ, and disclosure of YTQ use to a set of specific conventional medical professionals were available only in 2002, 2007, and 2012.

Furthermore, data on perceived helpfulness of YTQ for medical conditions was available only in 2002 and 2012. Questions regarding reasons for using YTQ for medical conditions were available only in 2002 (i.e., 5 reasons were provided from which respondents could select) and 2012 (i.e., 9 reasons were provided from which respondents could select). Questions regarding reasons for using YTQ for health were available only in 2007 (i.e., 7 reasons were provided from which respondents could select) and 2012 (i.e., 5 reasons were provided from which respondents could select). Detailed reasons for using YTQ in 2002, 2007, and 2012 are presented in Tables A and B (available as a supplement to the online version of this article at http://www.ajph.org). Questions and response categories regarding YTQ use were predetermined and varied somewhat among different surveys from 2002 to 2017. Brief descriptions of the different questions for 2002, 2007, and 2012 are presented in Figures A, B, and C, respectively (available as a supplement to the online version of this article at http://www.ajph.org).

We also examined relevant sociodemographics, behavioral factors, health insurance status, and several health care access–related factors to identify potentially predicting factors associated with YTQ use among US adults from 2002 to 2017.[1,10,11,13,16,17] Sociodemographic predictors we examined included age (18–44, 45–64, 65 years or older), gender (female, male), race/ethnicity (White, Hispanic, Black, other), geographic region (West, Northeast, Midwest, South), education level (high school or less, some college, bachelors or higher), annual household income (< $35 000, $35 000–$74 999, ≥ $75 000), and body mass index (defined as weight in kilograms divided by the square of height in meters: underweight < 18.5, normal weight = 18.5 to < 25, overweight/obesity ≥ 25). The behavioral factors included smoking status (current smokers vs not current smokers), alcohol intake (current drinkers vs not current drinkers), and physical activity level (i.e., active vs somewhat active vs not active).

We defined health care access–related factors using several proxies, including whether respondents had health insurance coverage (yes vs no), had a place to go when sick (yes vs no), could afford medication when sick (yes vs no), and had difficulty accessing traditional medical care (yes vs no).

A total of 116 404 US adult participants who answered the YTQ-related questions provided valid data for this study: 31 044 from 2002, 23 393 from 2007, 34 525 from 2012, and 26 742 from 2017.

Statistical Analysis

We initially merged data from the Family Core, the Sample Adult Core, and the supplemental Adult Complementary and Alternative Medicine file supplement of the NHIS for all 4 time points (i.e., 2002, 2007, 2012, and 2017). We then reconciled inconsistencies before further analysis (details are presented in Tables A, B, and D, available as a supplement to the online version of this article at http://www.ajph.org). We took into account features of complex sampling strategy—including stratification, clustering, and weights—for all analyses.

We used the Taylor series weighted linear regression method to examine the overall trend in use of YTQ in the past 12 months among US adults from 2002 to 2017. We compared changes in YTQ use between 2002 and 2017, 2007 and 2017, and 2012 and 2017.

We used descriptive statistics to examine the sociodemographics of YTQ users, the health problems or medical conditions for which YTQ were mostly used, the reasons for using YTQ to treat health problems or medical conditions, the perceived helpfulness of using YTQ to treat health problems or medical conditions, and the disclosure of YTQ use to health care providers, when this information was available in 2002, 2007, and 2012. We also examined the information sources and referrals for using YTQ in 2012.

We used Wald F statistics to examine whether there were differences in health care access among current YTQ users for all 4 time points, using the following 4 areas of information: the percentage of those (1) having insurance or not, (2) having a place to go (when sick) or not, (3) having difficulty affording prescription medication or not, and (4) having delayed access to traditional medical care or not.

We conducted multivariable logistic regression models to identify sociodemographic and behavioral factors associated with YTQ use among US adults. We calculated adjusted odds ratios (AORs) with 95% confidence intervals (CIs).

We performed data management and statistical analyses with SAS version 9.4 (SAS Institute Inc., Cary, NC). We used Proc SURVEYMEANS to obtain prevalence estimates and SEs, Proc SURVEYFREQ to perform the Wald F-test, and Proc SURVEYLOGISTIC to obtain AORs and 95% CIs. We set statistical significance as $P \leq .05$. We handled missing data by the listwise deletion in SAS when we conducted the analyses.

RESULTS

The prevalence of YTQ use was 5.8% in 2002, 6.7% in 2007, 9.8% in 2012, and 14.5% in 2017 ($P < .001$). We found significantly higher rates of YTQ use in almost every demographic subgroup in 2017 than in 2002, 2007, and 2012 ($P < .001$) as shown in Table 1. However, the prevalence of YTQ practice did not increase among current smokers and people who are underweight ($P > .5$), and it even dropped among adults who do not have insurance. We found that women had a

TABLE 1—Changes in Demographic Characteristics of Yoga, Tai Chi, and Qigong Users: National Health Interview Survey, United States 2002–2017

Variable	2002, No. (%)	2007, No. (%)	2012, No. (%)	2017, No. (%)	2012 and 2017, % Change[a]
Total	11 766 291 (5.8)	14 435 956 (6.7)	22 281 379 (9.8)	34 662 482 (14.5)	4.7
Age, y					
18–44	7 367 254 (3.7)	9 063 952 (4.2)	13 739 041 (6.2)	20 269 471 (8.6)	2.4
45–64	3 708 601 (1.8)	4 411 692 (2.1)	6 710 077 (3.0)	10 446 277 (4.4)	1.4
≥ 65	633 628 (0.3)	822 069 (0.4)	1 603 437 (0.7)	3 570 156 (1.50)	0.8
Gender					
Male	3 235 771 (1.6)	3 776 574 (1.8)	6 280 353 (2.8)	10 405 995 (10.1)	1.6
Female	8 530 520 (4.2)	10 659 382 (4.9)	16 001 026 (7.1)	24 196 487 (4.4)	3.0
Race/ethnicity					
Other	857 332 (0.4)	1 543 796 (0.7)	2 244 465 (1.0)	3 515 055 (1.5)	0.5
Hispanic	746 345 (0.4)	898 458 (0.4)	1 546 055 (0.7)	3 424 637 (1.4)	0.7
Black	733 473 (0.4)	902 764 (0.5)	1 987 705 (0.9)	2 702 101 (1.1)	0.2
White	9 429 141 (4.6)	11 090 938 (5.1)	16 503 154 (7.3)	25 020 689 (10.5)	3.2
BMI, kg/m^2					
Underweight, < 18.5	305 666 (0.2)	286 269 (0.1)	569 324 (0.3)	921 164 (0.4)	0.1
Normal weight, 8.5 to < 25	6 250 656 (3.2)	8 072 203 (3.9)	11 191 134 (5.1)	16 415 167 (7.1)	2.0
Overweight/obese, ≥ 25	4 923 644 (2.5)	5 727 588 (2.8)	10 219 515 (4.6)	16 693 485 (7.2)	2.6
Education					
High school or less	1 262 734 (0.6)	1 197 688 (0.6)	1 862 719 (0.8)	2 910 224 (1.2)	0.4
Some college	3 366 419 (1.7)	4 232 792 (1.9)	6 173 718 (2.7)	8 409 564 (3.5)	0.8
Bachelors or higher	7 113 469 (3.5)	8 992 013 (4.2)	14 244 942 (6.3)	23 342 694 (9.8)	3.5
Income, $					
≤ 34 999	2 833 864 (1.5)	3 722 973 (1.9)	4 975 887 (2.3)	6 685 095 (3.1)	0.8
35 000–74 999	4 584 946 (2.4)	3 943 590 (2.0)	5 961 978 (2.8)	8 294 152 (3.8)	1.0
≥ 75 000	3 990 519 (2.1)	5 636 704 (2.9)	10 463 334 (4.9)	17 781 580 (8.2)	3.3
Region					
Northeast	2 668 193 (1.3)	3 008 240 (1.4)	3 922 840 (1.7)	6 562 425 (2.7)	1.0
Midwest	2 880 379 (1.4)	3 468 438 (1.6)	5 253 269 (2.3)	8 126 264 (3.4)	1.1
South	3 180 362 (1.6)	3 749 290 (1.7)	6 091 078 (2.7)	9 558 009 (4.0)	1.3
West	3 037 357 (1.5)	4 209 988 (2.0)	7 014 192 (3.1)	10 415 784 (4.4)	1.3
Smoker					
Current smoker	2 051 568 (1.0)	2 408 322 (1.1)	3 011 852 (1.3)	3 170 364 (1.3)	0.0
Nonsmoker	9 694 712 (4.8)	12 010 839 (5.6)	19 239 179 (8.5)	31 480 270 (13.2)	4.7
Alcohol use					
Current drinker	9 377 624 (4.7)	11 394 402 (5.4)	17 872 327 (7.9)	28 277 572 (11.9)	4.0
Nondrinker	2 350 209 (1.2)	2 874 796 (1.4)	4 283 536 (1.9)	6 185 643 (2.6)	0.7
Physical activity					
Inactive	1 542 346 (0.8)	2 172 152 (1.0)	2 272 504 (1.0)	3 422 086 (1.5)	0.5
Some activity	3 225 539 (1.7)	4 020 203 (1.9)	5 697 084 (2.6)	9 240 602 (4.0)	1.4
Regular activity	6 717 170 (3.5)	8 025 987 (3.9)	13 983 836 (6.3)	21 468 686 (9.2)	2.9
Has insurance					
Yes	10 857 208 (5.4)	NA	20 866 456 (9.2)	33 561 008 (14.1)	4.9
No	899 341 (0.5)	NA	1 380 954 (0.6)	1 055 237 (0.4)	–0.2

Note. BMI = body mass index; NA = not applicable. Nos. represent estimated population sizes of yoga, tai chi, and qigong users on the basis of extrapolations from the sample proportions using weighted prevalence estimates.

[a]For Wald χ^2 test, all $P < .001$.

higher percentage of YTQ use than did men across all 4 time points (Figure 1).

Although most YTQ users used YTQ for maintaining overall wellness, a range of 14.4% to 17.3% of respondents (n = 225~465) reported use of YTQ to treat specific medical conditions (Table D). We identified pain (e.g., back pain, neck pain, joint pain or stiffness, headache or migraine), arthritis (e.g., arthritis, fibromyalgia), and mental health issues (e.g., anxiety, depression) as the top 3 most bothersome medical conditions for which respondents used YTQ at all 3 time points. The percentage of YTQ users who used these practices for mental health–related issues significantly increased from 2002 (9.8%) to 2012 (15.8%; $P < .001$). Most YTQ users perceived YTQ as helpful for their top 3 most bothersome medical conditions (Table 2).

The most frequently reported reasons for using YTQ to treat health problems or medical conditions were as follows: (1) YTQ combined with conventional medical treatment would help (76.1%); (2) YTQ focused on the whole person, mind, body, and spirit (71.8%); (3) YTQ can be practiced on your own (71.8%); and (4) YTQ are natural (62.9%). A detailed summary of these reasons from each survey year is given in Tables A and B.

The major sources of information about YTQ included videos or DVDs (31.3%), the Internet (27.8%), books or magazines (26.0%), TV or media (11.3%), and scientific articles (7.0%). According to YTQ users, their recommendations for YTQ use came mostly from friends (42.3%), family members (20.9%), and medical doctors (6.6%). The percentage of YTQ users who disclosed YTQ use to their conventional health care providers was 26.7% in 2002, 28.0% in 2007, and 37.9% in 2012. YTQ use was not significantly associated with having a place to go when sick and having difficulty affording prescription medication ($P > .5$). However, those having delayed access to the conventional medical care system were less likely to use YTQ across all 4 time points ($P < .001$; Table C).

In the multivariable logistic regression models (Table 3), being a woman, being aged 18 to 44 years, being White, having normal body weight, living in the West, and having a higher education level were more likely to be associated with the practice of YTQ than were being a man, older age, being a minority, being overweight or obese, not living in the West, and having a lower education level across all 4 time points. Higher family income was significantly associated with higher rates of YTQ use in 2007 and 2017 but not in 2002 and 2012. Among the 3 behavioral factors we examined, YTQ practice was associated with lower rates of smoking, higher alcohol consumption, and higher rates of physical activity.

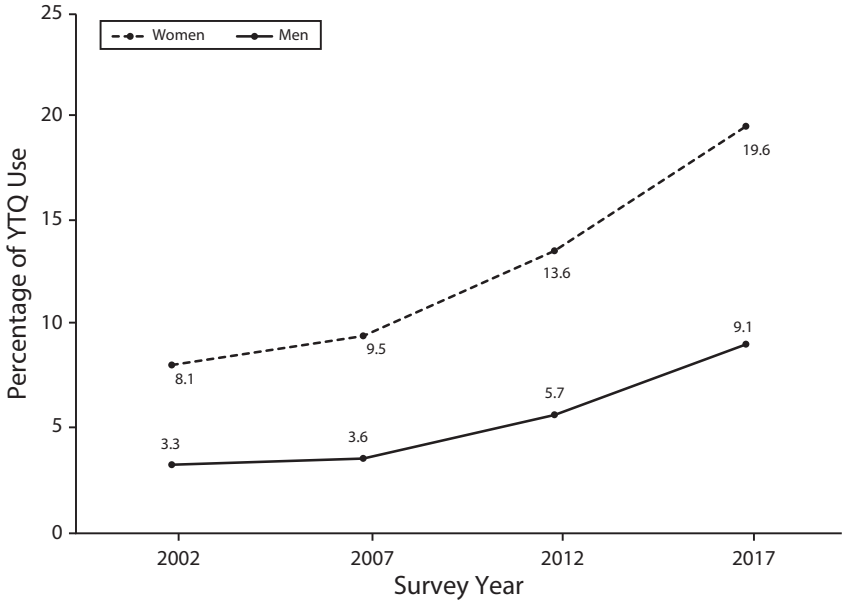

FIGURE 1—Prevalence of Current Yoga, Tai Chi, and Qigong (YTQ) Users by Gender: National Health Interview Survey, United States, 2002–2017

DISCUSSION

To the best of our knowledge, this is the first study using nationally representative data to examine the characteristics of YTQ use across multiple years among US adults. The use of YTQ has substantially increased among US adults within the past 15 years for all ages (i.e., adults who are aged 18 years or older), both genders, and all racial/ethnic groups, and use is expected to continue to increase.[13,18] The higher percentage of YTQ participation among women than men is consistent with several previous studies.[2,11,19] Although no gender differences for practicing tai chi and qigong have been reported in the United States, yoga classes are predominantly attended by female participants. The gender-specific facilitators and barriers to participating in YTQ, however, have not been well documented.

Several factors may contribute to the increasing use of YTQ among US adults. First, for decades there has been growing global awareness of complementary therapies that have been in use throughout China and India for thousands of years to promote wellness and prevent disease. Such practices may be especially appealing for people searching for time-tested therapies and culturally authentic modalities for health, wellness, and medical conditions.[2,4,5,20]

A second factor contributing to the increased popularity of YTQ use may be the rapidly increasing rates of complex and often common medical conditions (e.g., back pain,[21] anxiety and depression,[22] arthritis and fibromyalgia[23,24]), which may be ameliorated by YTQ[5] in combination with conventional medicine. In particular, more than 70% of the survey participants who reported using YTQ to treat a health problem or medical condition gave as a reason that it focused on the whole person, mind, body, and spirit—thought by many to be important for improving health and treating a variety of chronic diseases.[4,25]

A third factor contributing to increased YTQ popularity may be the increased

TABLE 2—Medical Conditions for Which Yoga, Tai Chi, and Qigong Were Used the Most and Associated Perceived Helpfulness: National Health Interview Survey, United States, 2002–2017

	2002, %	2007, %	2012, %
Pain conditions[a]			
Overall use[b]	41.8	45.7	36.8
Perceived helpfulness[c]			
A great deal	52.3	NA	53.9
Some	33.0	NA	39.2
A little	9.6	NA	5.5
Not at all	4.4	NA	1.4
Arthritis[d]			
Overall use[b]	11.6	17.3	7.0
Perceived helpfulness[c]			
A great deal	53.7	NA	12.4
Some	35.3	NA	83.0
A little	5.5	NA	0.0
Not at all	5.5	NA	4.6
Anxiety/depression[e]			
Overall use[b]	9.8	7.4	15.8
Perceived helpfulness[c]			
A great deal	52.9	NA	36.1
Some	38.6	NA	47.8
A little	8.5	NA	15.1
Not at all	0.0	NA	1.0

Note. CAM = complementary and alternative medicine; NA = not applicable; NHIS = National Health Interview Survey; YTQ = yoga, tai chi, and qigong.

[a]Back pain, neck pain, joint pain, or severe headache or migraine.

[b]Percentage of YTQ users who used YTQ as 1 of their top 3 CAM therapies and who used YTQ for that condition.

[c]Perceived helpfulness of YTQ for medical conditions. Questions regarding the medical conditions for which respondents used YTQ were not asked in the 2017 NHIS questionnaire. Medical conditions reported by NHIS were grouped as the following 5 categories: (1) pain conditions, (2) arthritis, (3) mental health issues, (4) cardiovascular diseases, and (5) other medical conditions. Pain conditions, arthritis and fibromyalgia, and mental health issues were the medical conditions for which YTQ were commonly used. Perceived helpfulness was measured on a 4-point scale (i.e., a great deal, some, a little, not at all).

[d]Arthritis, fibromyalgia.

[e]Feeling anxious, nervous, or worried, depression, frequent stress.

visibility of YTQ in popular media (e.g., Internet, books, magazines, newspapers, radios, CDs, and DVDs), including their notable use by celebrities, which may have sparked interest and enhanced acceptability in US culture. This popularity is reflected in the proliferation of yoga instructors, yoga clubs, and yoga classes offered in a variety of settings ranging from self-practice to specialized studios. This has made YTQ more accessible to adults of all ages. Another contributing factor in YTQ's growing use may be the mounting scientific reports on YTQ's efficacy for improving well-being and treating a variety of medical conditions and the promotion of these findings in the lay press, which have strengthened the evidence and perception of the benefits of these therapies. These reports have burgeoned, especially since 2000.[26] For example, a Cumulative Index to Nursing and Allied Health Literature search about the benefits of YTQ from 2004 to 2018 revealed more than 1900 articles, whereas a similar search from 1983 to 2004 yielded fewer than 500 articles. The combination of increased access to these therapies in US society and the increased awareness of the benefits of YTQ may explain much of the observed increase in YTQ use.

It is noteworthy that most people who used YTQ as 1 of their top 3 CAM therapies learned about YTQ from a friend or family member rather than from a physician. Furthermore, only 7% of people reported that they obtained information about YTQ from scientific articles, and only 6.6% of YTQ users were referred by their medical professionals. These results may indicate that media in the popular culture, such as books, magazines, newspapers, and social networks, play an important role in people's exposure to YTQ. However, these results raise concerns about the limited distribution of scientific results outside academic circles and about whether physicians' referrals and scientific articles meet people's needs to better learn about YTQ.

Moreover, among those who used YTQ for their medical conditions, only approximately one third (i.e., 26.7% in 2002, 28.0% in 2007, 37.9% in 2012) disclosed their use of YTQ to their medical providers, demonstrating a continuing gap in communication between physicians and patients about use of these therapies and showing how YTQ is not routinely considered during an average clinical encounter. This underscores the need for better patient–provider communication and suggests an opportunity for dialogue about integration between conventional medical providers and CAM practitioners to facilitate optimal health care.[5] Moreover, it is worth further investigating why physicians are reluctant to communicate about and recommend YTQ to their patients, especially when YTQ have been shown to be promising complementary approaches for many medical conditions.

Considering this situation, it may be beneficial to provide YTQ education and training for health professions students and established health care professionals to integrate these "ancient turned new" practices into the health care system.[27] Also, opening the dialogue regarding use of YTQ during routine clinical care could present a viable solution to addressing many of today's medical challenges—most notably, the increasing events of acute and chronic pain conditions and mental health disorders exacerbated by the stressors of modern life. Furthermore, increasing education about YTQ in the health care community will allow providers to answer patients' questions as well as provide standardized instruction, ensuring that patients get reliable and consistent information.

It is notable that mental health issues were upgraded to the second most important medical condition mentioned for YTQ use in 2012, whereas it was in third place in both 2002 and 2007. This shift could reflect the increased appeal of a holistic approach for addressing mental health problems.[4,5] In this instance, YTQ may fill the need for a comprehensive lifestyle change, especially for people with mental health issues who do not respond well to prescribed medications or psychotherapy. This shift toward greater use of YTQ for mental health issues is especially meaningful because of the increasing prevalence of mental illness across the world, with the prediction that mental illness will be the second most important cause of disability and the second-leading cause of disease burden worldwide by the year 2020.[22,28,29]

Use of YTQ for mental health conditions may be especially helpful in filling this growing need because the efficacy and the effectiveness of currently available antidepressants and psychotherapy seem unacceptably low and because many of the antidepressants may cause side effects.[30] Considering that most YTQ users perceived

TABLE 3—Predicting Factors for Yoga, Tai Chi, and Qigong Use Among Adults: National Health Interview Survey, United States, 2002–2017

Variable	2002, AOR (95% CI)	2007, AOR (95% CI)	2012, AOR (95% CI)	2017, AOR (95% CI)
Age, y				
18–44	2.1 (1.6, 2.6)	2.7 (2.0, 3.6)	2.5 (2.1, 3.0)	2.3 (2.0, 2.6)
45–64	1.8 (1.4, 2.3)	1.9 (1.4, 2.6)	1.6 (1.3, 2.0)	1.6 (1.4, 1.9)
≥ 65 (Ref)	1	1	1	1
Gender				
Female	2.9 (2.5, 3.4)	2.9 (2.5, 3.5)	2.9 (2.6, 3.3)	2.8 (2.5, 3.1)
Male (Ref)	1	1	1	1
Race/ethnicity				
Other	1.4 (1.1, 1.9)	1.4 (1.1, 1.8)	1.0 (0.9, 1.2)	0.9 (0.8, 1.1)
Hispanic	0.8 (0.7, 1.0)	0.6 (0.5, 0.8)	0.7 (0.6, 0.8)	0.7 (0.5, 0.8)
Black	0.8 (0.6, 1.0)	0.8 (0.6, 1.0)	0.7 (0.6, 0.9)	0.7 (0.6, 0.9)
White (Ref)	1	1	1	1
BMI, kg/m^2				
Underweight, < 18.5	0.9 (0.6, 1.3)	0.9 (0.5, 1.4)	1.2 (0.8, 1.8)	1.2 (0.9, 1.8)
Overweight/obese ≥ 25	0.7 (0.6, 0.8)	0.6 (0.5, 0.7)	0.7 (0.6, 0.8)	0.6 (0.5, 0.7)
Normal weight, 18.5 to < 25 (Ref)	1	1	1	1
Education				
Bachelors or higher	3.8 (3.0, 4.8)	4.7 (3.6, 6.0)	3.6 (3.0, 4.4)	3.1 (2.6, 3.7)
Some college	2.0 (1.7, 2.5)	2.4 (1.9, 3.1)	2.0 (1.7, 2.5)	1.6 (1.4, 1.9)
High school or less (Ref)	1	1	1	1
Income, $				
≥ 75 000	0.9 (0.8, 1.1)	0.6 (0.5, 0.8)	1.0 (0.9, 1.2)	0.8 (0.7, 0.9)
35 000–74 999	0.8 (0.7, 1.0)	0.7 (0.6, 0.8)	0.9 (0.8, 1.0)	0.8 (0.7, 0.9)
≤ 34 999 (Ref)	1	1	1	1
Region				
Northeast	0.8 (0.7, 1.0)	1.0 (0.8, 1.2)	0.7 (0.6, 0.8)	0.7 (0.6, 0.8)
Midwest	0.8 (0.6, 0.9)	0.7 (0.6, 0.9)	0.7 (0.6, 0.8)	0.8 (0.7, 0.9)
South	0.6 (0.5, 0.7)	0.7 (0.6, 0.8)	0.6 (0.5, 0.7)	0.6 (0.5, 0.7)
West (Ref)	1	1	1	1
Smoker				
Current smoker	0.9 (0.8, 1.0)	0.9 (0.7, 1.2)	0.9 (0.8, 1.0)	0.8 (0.7, 0.9)
Nonsmoker (Ref)	1	1	1	1
Alcohol use				
Current drinker	1.7 (1.5, 2.0)	1.8 (1.5, 2.2)	1.8 (1.5, 2.0)	1.9 (1.7, 2.2)
Nondrinker (Ref)	1	1	1	1
Physically active				
Some activity	2.5 (2.0, 3.0)	2.4 (1.9, 2.9)	2.4 (2.0, 2.9)	2.3 (1.9, 2.7)
Regular activity	4.3 (3.6, 5.1)	3.7 (3.1, 4.6)	4.1 (3.5, 4.9)	4.0 (3.4, 4.7)
Inactive (Ref)	1	1	1	1
Has insurance				
Yes	0.7 (0.6, 0.9)	NA	0.8 (0.7, 1.0)	1.0 (0.8, 1.3)
No (Ref)	1	NA	1	1

Note. AOR = adjusted odds ratio; BMI = body mass index; CI = confidence interval; NA = not applicable. Odds ratios were adjusted for gender, race/ethnicity, and age.

YTQ as helpful for their medical conditions, further studies should explore how to incorporate these mind–body therapies into conventional medical practices to maximize benefits for individuals of various demographics and with varying health conditions.

Limitations and Strengths

Our study has limitations. First, the NHIS surveys depended on respondents' memory and their willingness to report their YTQ use. Therefore, the answers are prone to recall bias. Second, for each of the 4 NHIS surveys, the collection of the survey data was at a single point in time, which resulted in an inability to produce consecutive annual prevalence estimates. Third, YTQ were treated as 1 modality in our study. Even though they are all mind–body practices, they differ in various respects; previous studies have shown them to differ in prevalence, growth, and user characteristics.[13,31,32] Lastly, there have been major changes in NHIS data collection and sampling methods and survey designs over time (i.e., 2002–2017).[33] For example, fewer questions were asked for sample adults about their use of YTQ in 2017, which may not be comparable to questions in the supplemental Adult Complementary and Alternative Medicine file section fielded in 2002, 2007 and 2012. Those revisions across the 4 survey years precluded direct comparisons for some questions and limited the trend analysis to only questions that were asked consistently on all questionnaires.

However, our study sheds light on the prevailing and specific reasons more people have turned to YTQ in modern US society and reveals the major medical conditions for which adults have used YTQ as top 3 CAM therapies within the past 15 years in the United States. The information derived from our study may serve as a useful complement to the experimental and clinical studies about the efficacy and effectiveness of YTQ. These combined research efforts have the potential to change how medical care is practiced and represent a mandate to incorporate YTQ information into health professionals' education. This information could also stimulate further dialogue among medical professionals, insurance companies, health policymakers, and patients to consider the benefits that YTQ may offer and, therefore, to suggest effective strategies to integrate YTQ into the current health care system.

Conclusions

The increasing use of YTQ among the general public in the United States is not surprising, as YTQ have been used as natural and holistic healing arts for maintaining a healthy lifestyle as well as for managing chronic health issues over the past few decades. This study does, however, shed more light on the patterns of YTQ use within the past 15 years. Considering that few of those who used YTQ as 1 of their top 3 CAM therapies disclosed their YTQ use to their medical doctors, and even fewer were referred by their medical doctors, more YTQ education among conventional health care professionals is warranted. As most users perceived YTQ as helpful for their various chronic conditions, in particular as adjuncts to conventional medicine, future studies should explore how to incorporate YTQ into the current health care system to maximize benefits for more people. AJPH

CONTRIBUTORS

C. Wang conceptualized and designed the study, led the analysis, interpreted the data, and drafted the article. K. Li reviewed the article and provided advice on content and implications. K. Li and S. Gaylord revised the article. A. Choudhury helped with the data analysis and interpretation. S. Gaylord responded to reviewers' comments. All authors contributed to the writing of the article and approved the final version.

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CONFLICTS OF INTEREST

All authors have indicated that they have no potential conflicts of interest to disclose.

HUMAN PARTICIPANT PROTECTION

The study was exempt from institutional review because the data are publicly available.

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