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Factors Associated with Pediatric Use of Complementary and Alternative Medicine in the United States: Results from the National Health Interview Survey

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Abstract

Background—Limited data are available on the use of complementary and alternative medicine (CAM) by children and adolescents in the United States and factors associated with CAM use among the pediatric population.

Methods—Utilizing the 2007 National Health Interview Survey data among individuals less than 18 years of age (n=9417), we compared CAM users (excluding those using vitamins and minerals) and non-CAM users. Using bivariable and multivariable logistic regression models, we examined independent associations of CAM use with sociodemographic factors, prescription medication use, delays in health care due to access difficulties, and common medical conditions/symptoms.

Results—In an adjusted multivariable logistic model, CAM users were more likely than non-CAM users to be: adolescents rather than infants or toddlers (adjusted odds ratio, AOR 1.61 [1.11–2.34]); live in the West (AOR 2.05 [1.62–2.59]), Northeast (AOR 1.36 [1.02–1.80]), or Midwest (AOR 1.35 [1.04–1.74]) compared to the South; more likely to have a parent with a college education (AOR 4.33 [2.92–6.42]) and more likely to use prescription medication (AOR 1.51 [1.19–1.92]). Pediatric CAM users were more likely to have the following medical conditions/symptoms: anxiety or stress (AOR 2.54 [1.89–3.42]), dermatologic conditions (AOR 1.35 [1.03–1.78]), musculoskeletal conditions (AOR 1.94 [1.31–2.87]), and sinusitis (AOR 1.54 [1.11–2.14]). Use of CAM by a parent was strongly associated with the child's use of CAM (AOR 3.83 [3.04–4.84]).

Conclusions—In 2007, pediatric CAM users were more likely to take prescription medications, have a parent that used CAM, and have chronic conditions such as anxiety or stress,

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musculoskeletal conditions, dermatologic conditions, or sinusitis. Research is required to guide pediatricians in making recommendations on CAM modalities for children including potential risk and/or benefits, and interactions with conventional therapies.

Keywords

complementary therapies; infant; child; adolescent

Introduction

Complementary and alternative medicine (CAM) is defined as “a group of diverse medical and health care systems, practices, and products that are not generally considered to be part of conventional medicine”.⁽¹⁾ Parents/patients frequently ask health care professionals about CAM therapies; however, many feel uncomfortable advising patients and desire further knowledge regarding CAM therapies.^(2–5) The American Academy of Pediatrics Provisional Section of Complementary, Holistic, and Integrative Medicine, the Task Force on Complementary and Alternative Medicine, stated: “Pediatricians and other clinicians who care for children have the responsibility to advise and counsel patients and families about relevant, safe, effective, and age-appropriate health services and therapies regardless of whether they are considered mainstream or CAM”.⁽⁶⁾ Utilizing data from 2007 National Health Interview Survey (NHIS), Barnes et al recently estimated that 11.8% of children in the U.S. use CAM.⁽⁷⁾ This report highlighted the most frequent CAM therapies used among children: biologically based therapies (4.7%), mind-body therapies (4.3%), and manipulative and body-based therapies (3.7%). Particular sociodemographic patterns were suggested; such as equal CAM use between boys and girls, higher use among non-Hispanic Whites, higher use among educated families, and regional variations with a low use in the South. In 1996, the estimated expenditures towards CAM therapies or remedies for children were 127 and 22 million dollars, respectively.⁽⁸⁾

Though smaller clinical surveys have documented higher CAM use among adolescents⁽⁹⁾ and the chronically ill pediatric population,⁽¹⁰⁾ clinical factors associated with CAM use have not been fully explored in national surveys. In this context, we conducted this study to describe factors associated with pediatric CAM use including sociodemographic factors, medical conditions, prescription medication use, absence from school due to illness, and access to health care. We compared CAM users to non-CAM users, and report independent correlates of CAM use in the pediatric population. We hypothesized that CAM use would be higher among prescription medication users, households with difficulties in accessing healthcare, children who missed more school due to illness, and children with musculoskeletal conditions.

Methods

Data Source

We examined data collected in 2007 for the NHIS by the National Center for Health Statistics and Centers for Disease Control and Prevention. NHIS gathers data on the health of the civilian, non-institutionalized, household population in the United States. The survey randomly selects households with a multistage stratified design. NHIS contains a Basic Module with the Family Core, the Sample Child Core, the Adult Core, and supplemental questions that vary from year to year. In 2007, a Child Complementary and Alternative Medicine Supplement was provided specifically to collect data on individuals less than 18 years of age. A sample child (SC) in each family was randomly selected for the Sample Child Core and the Child Complementary and Alternative Medicine Supplement. The Sample Child Core obtained data on medical conditions, prescription medication use, and

use/access of health care. A knowledgeable adult family member in the household responded to the questionnaires regarding the child's health. The Child Complementary and Alternative Medicine Supplement asked adult respondents about the sample child's use of non-conventional health care modalities in the last 12 months. An adult in the household was similarly sampled for the Sample Adult Core and the Adult Complementary and Alternative Medicine Supplement. The Family Core collected data on sociodemographics, insurance status, and utilization of health care services for each family member. The survey was conducted face-to-face in English and/or Spanish. The child sample in 2007 had a 76.5% response rate and included data on 9417 children less than 18 years old.

The Child Complementary and Alternative Medicine Supplement survey asked respondents about the children's use of the following CAM modalities in the last 12 months: acupuncture, ayurveda, biofeedback, chelation therapy, chiropractic or osteopathic manipulation, energy healing therapy, hypnosis, massage, naturopathy, movement techniques (Feldenkreis, Alexander technique, Pilates, and Trager Psychophysical Integration), homeopathy, Asian mind-body techniques (yoga, tai chi, and/or qigong), other relaxation techniques (meditation, progressive relaxation, guided imagery deep breathing exercises, support group meetings, and/or stress management class), traditional healers (Curandero, Espiritista, Hierbero, Yerbero, Shaman, Botanica, Native American Healer/Medicine man, Sobador), special diets (Vegetarian, Macrobiotic, Atkins, Pritikin, Zone, Ornish, South Beach), herbs and non-vitamin/mineral supplements. While NHIS collected data on the use of vitamins and minerals, we did not include these data in our study so that we could focus on plant-based herbs or medicinal plants. Also, vitamins and minerals are used routinely for preventive care in pediatrics.

Statistical Analysis

We combined all individual CAM modalities into an overarching category of any CAM use in the last 12 months while excluding vitamins and minerals. Utilizing categories defined by the National Center for Complementary and Alternative Medicine (NCCAM), we grouped CAM modalities into biologically based practices (herbal supplements, diets), manipulative/body based practices (chiropractic/osteopathic, massage, Alexander technique, pilates, Feldenkreis, Trager Psychophysical Integration), mind-body based practices (biofeedback, hypnosis, guided imagery, yoga, tai chi, qigong, meditation, progressive relaxation, guided imagery deep breathing exercises, support group meetings, and/or stress management class), whole medical systems (homeopathy, naturopathy, ayurveda) and traditional healers (Curandero, Espiritista, Hierbero, Yerbero, Shaman, Botanica, Native American Healer/Medicine man, Sobador) and energy medicine. Identical categories for CAM were used by Barnes et al using the same data set.(7)

We defined any CAM use in the last 12 months as the primary outcome for the study, with sub-analyses of the three most common CAM modalities identified. Utilizing data on sociodemographics, medical conditions in the last 12 months, prescription medication use, and use/access to health care, we identified potential associations to any CAM use and the 3 most common CAM modalities used in the last 12 months. Sociodemographic categories that we examined included: age categories (0–4, 5–11, 12–17 years), sex, race (non-hispanic White, non-hispanic Black, non-hispanic Asian, non-hispanic all other race groups, Hispanic), region (Northeast, South, Midwest, West), income ($\leq$ \$19,999, \$20,000–\$34,999, \$35,000–\$64,999, $\geq$ \$65,000), highest education of either parent (less than high school, high school, some college, 4 year college or more), and health insurance (Medicaid/Medicare, private, uninsured, unknown). We explored the association of CAM use with prescription medication use in the last 3 months and difficulty in affording prescription medication in the last 12 months. We collapsed data regarding delayed medical care due to access difficulties (*difficulty getting through on phone,... couldn't get an appointment soon enough, ...wait too*

long to see doctor, ...wasn't open when you could get there, ...didn't have transportation) into a single dichotomous category to identify possible correlates with CAM use (delay vs no delay in medical access). We utilized number of school days missed due to illness in the last 12 months (0–2, 3–5, 6–10, >10 school days) as a proxy for health status. We explored the use of CAM by parental figures (parents, grandparents, foster parents, legal guardians) with overall CAM use of children in the same household.

We restricted analysis of self reported medical conditions/ symptoms to those with sufficient numbers ($n > 30$) among CAM users for analysis in order to provide stable estimates of association. Some conditions/symptoms were grouped together to produce sufficient group sizes for analysis such as developmental disorders (mental retardation; other developmental delay; Down Syndrome; or autism); headaches (migraine; non-migraine); musculoskeletal (arthritis; back or neck pain); and dermatologic conditions (acne, warts, or other skin problems). Infrequent conditions with cell sizes less than 30 such as cancer, congenital heart disease, cystic fibrosis, diabetes, and sickle cell anemia were excluded from analysis.

Due to the complex sampling survey design of NHIS, we used SAS-callable SUDAAN version 8.1 (Research Triangle Institute, Research Triangle Park, N.C.) to obtain appropriate national estimates. We compared sociodemographic characteristics, prescription medication use, ability to pay for prescription medications, missed school days due to illness, and medical conditions with chi square tests of independence. Independent factors associated with CAM use were examined through bivariable and multivariable logistic regression analysis. Factors with a p-value of ≤ 0.20 in bivariable analysis were considered for the multivariable model. The multivariable model was built in a stepwise fashion with a backwards elimination strategy retaining factors associated with CAM use with a Wald statistic p-value of ≤ 0.05 significance. This strategy was repeated for the 3 most common CAM modalities: mind-body techniques, biological therapies, and manipulation/bodywork.

We performed a secondary analysis to explore the relationship of CAM use by parental figures (parents, grandparents, foster parents, and legal guardians) and their children. Since not all adult respondents were parental figures in the household (e.g. brothers, sisters, uncles, aunts), we included only those households where a parental figure responded to the Adult Complementary and Alternative Medicine supplement in this secondary analysis ($n=7455$). This study was reviewed by our Institutional Review Board and considered exempt from full board review.

Results

The estimated prevalence of CAM use excluding vitamins in the U.S. by individuals less than 18 years of age in 2007 was 8.7 million. In Table 1, we report the sociodemographic characteristics and medical conditions or symptoms for CAM users and non-CAM users. Overall CAM use was higher among adolescents, non-Hispanic Whites, those who lived in households earning more than \$65,000, or those with a parent that completed college. Compared to other parts of the US, the South had a lower higher prevalence of CAM users to non-CAM users. CAM use was higher among individuals with private insurance. CAM use was higher in prescription medication users than in non-prescription medication users in the last 3 months. CAM use was also higher among households reporting a delay in medical care of children due to difficulties in access. Children who missed more school days due to illness reported higher CAM use.

With the exception of asthma or frequent ear infections, we found higher CAM use among children with common medical conditions or symptoms including: attention deficit hyperactivity disorder (ADHD), allergies, asthma, dermatologic conditions, developmental

disorders, fever, gastrointestinal conditions, headaches, insomnia, learning disabilities, musculoskeletal conditions, overweight, psychological conditions, and respiratory infections. The most common sub-categories of CAM use, including mind-body techniques, biologically based therapies, and manipulation/body work had very similar sociodemographic patterns to overall CAM use (data not presented).

Among a sub-set of children whose parents also responded to the Adult survey, a larger percentage of children used CAM if a parental figure used CAM (65%) as compared to children where a parental figure did not use CAM (35%).

In adjusted multivariable regression analysis, we identified multiple sociodemographic variables and medical conditions independently associated with CAM use (Table 2). CAM use was higher among: adolescents compared to children less than 5; those living in the West, Northeast, and Midwest than the South; households with parents with more than 12 years of education, and prescription medication users in the last 3 months. Medical conditions or symptoms independently associated with higher CAM use, while controlling for other significant sociodemographic factors, were anxiety and stress, dermatologic conditions, insomnia, musculoskeletal conditions, nausea and/or vomiting, gastroesophageal reflux, and sinusitis.

In three separate sub-analyses with adjusted regression models we analyzed the most frequent CAM modalities (Table 2), including mind body techniques, biologically based therapies, and manipulation/body work, and identified different sociodemographic and health conditions/symptoms associated with use. Mind-body use positively correlated with: being adolescent versus infant or toddler, living in the West or Northeast versus the South, and higher parental education with some college or more versus parental education of less than high school. Medical conditions associated with mind body use were anxiety/stress, insomnia, and nausea/vomiting. Use of biologically based therapies correlated with being an adolescent versus being an infant or toddler, White versus non-Hispanic Black or Hispanic, living in the West versus the South, and parents being college educated versus parents completing less than high school. Biologically based therapies were also associated with delays in health care due to difficulties with access, and medical conditions including insomnia, fever, reflux, and sinusitis. Manipulation and bodywork correlated with being an adolescent as compared to infant or toddler, being White as compared to non-Hispanic Black or Hispanic, and higher income as compared to lower income. Abdominal pain, musculoskeletal conditions, and nausea/vomiting were independently associated with use of manipulation and bodywork.

In a secondary analysis restricted to those children whose parents were also queried about CAM use, we created a regression model for CAM use that included socioeconomic factors associated with CAM use in the overall multivariable model and found that any parental use of CAM was associated with the child CAM use (AOR 3.83 CI 3.04–4.84). When adjusted for parental use of CAM, other factors associated with CAM use remained significant except: 1.) The difference between adolescent CAM use and infant or toddler CAM use (0–4 years) was no longer statistically significant; 2.) Dermatologic conditions were no longer associated with pediatric CAM use.

Discussion

We found that more than 8 million individuals younger than 18 years of age used CAM in the United States in 2007. Adolescents, children living in the West, those with parents with more than 12 years of education and prescription medication use were independently associated with higher overall CAM use. CAM use was also associated with a range of

common medical conditions and symptoms including gastrointestinal problems, anxiety/stress, dermatologic conditions, insomnia, musculoskeletal conditions, and sinusitis. We found higher associations of: anxiety or stress, insomnia, and nausea and/or vomiting among mind body users; fever, insomnia, reflux, and sinusitis among users of biologically based therapies; and abdominal pain, musculoskeletal conditions, and nausea and/or vomiting among manipulation/body work users. Parental CAM use is a strong correlate of child CAM use.

In an analysis adjusted only for age, Barnes also noted no differences of CAM use by gender, higher use among adolescents than younger age groups, and higher use among White children than Black children or Non-Hispanic children than Hispanic children.(7) Barnes et al also noted higher CAM use in households with more parental education, among those who live in the West or Northeast, and among those with higher income. Based on an online national survey of adolescents in 2002, Wilson et al reported higher CAM use in the last 30 days among females than males, Blacks than Whites, among those living in the East than Midwest or South, and among those with perceived low family income.(9) The authors noted no difference in CAM use by parental education.

In our adjusted regression models, we found no independent relationship between overall CAM use and gender or race. Only among users of biologically based therapies and manipulation/bodywork did racial differences remain significant with less use among non-Hispanic Blacks and Hispanics compared to Whites. Within the adult population, overall CAM use has been reported to be less among non-Hispanic Blacks and Hispanics than non-Hispanic Whites.(11)

In our model, higher age, parental education, and living in the West were significantly associated with CAM use. Higher income was not associated with overall pediatric CAM use, but was associated with manipulation and bodywork therapies. There may be a financial barrier for children to access manipulation and bodywork, such as chiropractic and massage, as compared to other CAM modalities. Our results that indicating that adolescents are more likely to use CAM is consistent with data reported by Wilson and colleagues.(9)

Barnes et al reported a low prevalence of pediatric CAM use for selected diseases and conditions with the most common being: back or neck pain (6.7%), head or chest cold (6.6%), anxiety/stress (4.8%), other musculoskeletal conditions (4.8%), ADHD/ADD (2.5%), and insomnia/trouble sleeping (1.8%).(7) These data suggest that CAM is used for symptom management, health maintenance or prevention, rather than treatment of specific conditions. However, many studies have found higher CAM use among children with chronic conditions such as: asthma,(12,13) ADHD,(14) autism,(15,16) cancer, (17–19) food allergies,(20) juvenile idiopathic arthritis,(21) type I diabetes,(22) and sickle cell anemia. (23) We excluded anemia, cancer, congenital heart disease, diabetes, and sickle cell anemia from our analysis due to insufficient numbers. The respondents of NHIS reflect the general pediatric population, but there may be insufficient sampling of children with chronic diseases to detect associations with CAM use. Some of the associations with CAM use we found were with medical symptoms rather than specific medical diagnoses, such as nausea/vomiting, and abdominal pain.

Overall CAM use was associated with prescription medication use in the last 3 months. While not significantly associated with the use of biologically based therapies, this raises the potential for drug-herb interaction. Among adults, only half disclose their use of herbal and dietary supplements to a healthcare provider.(24) Pediatricians and pharmacists need to inquire about use of herbs and supplements when prescribing medications and actively monitor for adverse effects. Use of biologically based therapies was associated with health

access difficulties, suggesting that parents may turn to CAM therapies when conventional health care is not readily available. Parental use of CAM is strongly associated with child CAM use. This may be a consequence of parents' administering or encouraging CAM use for their child. Children also may model the health behavior of their parents, and adopt CAM use. Parental use of CAM may predict which children use CAM as adults.

Our study has several limitations. The data were collected from an adult proxy in the household which is susceptible to recall bias. Also, the adult proxy may not have known that a child or teenager was using CAM. There may be types of CAM therapies that are used by children, but not specifically asked by the survey such as music therapy. Data regarding symptoms and medical conditions are based on self-report and may not meet standard clinical definitions. The number of children with specific chronic conditions was small, and therefore associations between CAM use and some chronic conditions may not be apparent. Associations with medical conditions and symptoms characterize pediatric CAM users, rather than indicate intentions to treat specific conditions. Despite these limitations, our analysis utilized the most currently available dataset from a national representative sample to describe the use of CAM among the pediatric population.

CAM use is higher among adolescents, those living in the West, educated households, children whose parents use CAM, and among prescription medication users. Healthcare providers need to inquire about CAM use in households and advise patients appropriately regarding clinical efficacy, or lack thereof, and potential adverse interactions with herbs-drugs. Parents' use of CAM may suggest that their children may be using CAM as well. More research is necessary to establish evidence for CAM therapies among children, in particular with mind-body techniques, biologically based therapies, and manipulation/body work. With more evidence of efficacy, physicians will be better able to guide patients to make safe and effective decisions regarding CAM use.

Abbreviations

CAM	complementary and alternative medicine
NHIS	National Health Interview Survey
SC	sample child
ADHD	attention deficit hyperactivity disorder

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Table 1

Characteristics of CAM Users less than 18 years in the United States excluding use of vitamins and minerals^a
(n=9414)

Characteristics	CAM Users (n=1055) %	Non-CAM Users (n=8254) %
Demographics		
Age (years) ^b		
Infant and Toddler (0–4)	17.8	29.4
Child (5–11)	34.5	38.3
Adolescent (12–17)	47.7	32.3
Gender		
Male	48.3	51.5
Female	51.7	48.5
Race ^b		
Non-Hispanic White	71.6	55.8
Non-Hispanic Black	9.1	16.6
Non-Hispanic Asian	3.8	4.2
Non-Hispanic All	1.9	1.5
Other Races		
Hispanic	13.6	21.8
Income ^b		
≤\$19,999	9.4	16.6
\$20,000–34,999	12.0	17.1
\$35,000–64,999	26.6	26.8
≥\$65,000	51.9	39.4
Region ^b		
West	27.6	22.1
Midwest	27.3	23.3
South	27.1	38.1
Northeast	18.0	16.6
Highest Education of Either Parent ^b		
Less than High School	5.4	13.7
High School	15.3	23.6
Some College	28.2	30.1
4 Year College or More	51.2	32.6
Insurance		
Medicaid/Medicare	16.1	25.2
Private	62.6	53.4

Characteristics	CAM Users (n=1055) %	Non-CAM Users (n=8254) %
Uninsured	7.9	13.3
Unknown	13.3	7.9
Prescription Medication Use in the Last 3 months ^b	23.1	10.9
Difficulty Affording Prescription in Last 12 Months ^b	3.8	1.8
Delayed Medical Care Due to Difficulties with Access ^b	15.7	8.9
Missed School Days Due to Illness ^b		
0 to 2	47.2	60.1
3 to 5	29.0	24.7
5 to 10	13.1	10.2
More than 10	10.7	5.0
Medical Conditions and/or Symptoms		
ADHD ^b	12.4	6.0
Allergies		
Hayfever ^b	17.9	9.1
Respiratory allergy ^b	17.1	8.6
Food/diet allergy ^b	7.6	3.5
Other ^b	7.9	4.6
Asthma	12.8	8.7
Dermatologic		
Acne and/or Warts ^b	16.5	7.6
Developmental Disorders ^b	7.5	3.1
Fever ^b	41.1	27.8
Gastrointestinal		
Nausea/Vomiting ^b	33.8	18.9
Abdominal Pain ^b	10.9	4.2
Reflux ^b	9.6	3.6
Constipation ^b	8.3	4.3
Headaches ^b	13.2	6.6
Insomnia ^b	12.2	4.1
Learning Disability ^b	13.7	6.6
Musculoskeletal ^b	9.7	2.6
Overweight ^{b, c}	8.7	4.8
Psychological		

Characteristics	CAM Users (n=1055) %	Non-CAM Users (n=8254) %
Depression ^b	7.2	2.3
Anxiety and/or Stress ^b	21.6	6.1
Respiratory Infections in Last 12 months		
Ear Infections (3 or More)	6.5	4.9
Sinusitis ^b	14.2	6.3
Chest/Head Colds ^b	66.0	53.0
Influenza/ Pneumonia ^b	11.1	5.8
Pharyngitis ^b	53.9	35.1
Parental Use of CAM ^d	64.6	27.6

Abbreviations: CAM, complementary and alternative medicine, ADHD, attention deficit hyperactivity disorder

^a Data sources from NHIS 2007, weighted percents extrapolated from the to the U.S. census (2000) for the child civilian, non-institutionalized household population.

^b $p \leq .005$ for differences between CAM users and non-CAM users.

^c Child reported by adult respondent as being overweight

^d Parental Use of CAM represents a sub-set of all children sampled (n=7455) where a parental figure (parent, grandparent, foster parent or legal guardian) completed Adult survey on CAM use

Table 2

Sociodemographic factors and medical conditions independently associated with all CAM use and the three most common CAM modalities among Individuals less than 18 years

	All CAM Use ^a	Mind Body Use ^b	Biologically based therapies ^c	Manipulation/Body Work ^d
Sociodemographic				
Age (years)				
Infant and Toddler (0–4)	Reference	Reference	Reference	Reference
Child (5–11)	1.08 [0.74–1.58]	1.42 [0.76–2.67]	1.60 [1.03–2.51]	1.18 [0.81–1.72]
Adolescent (12–17)	1.61 [1.11–2.34]	2.45 [1.36–4.40]	2.15 [1.35–3.44]	1.98 [1.39–2.81]
Race				
Non-Hispanic White			Reference	Reference
Non-Hispanic Black			0.60 [0.37–0.96]	0.58 [0.37–0.92]
Non-Hispanic Asian			0.70 [0.38–1.27]	0.56 [0.25–1.26]
Non-Hispanic All Other Races			1.35 [0.49–3.72]	0.72 [0.21–2.54]
Hispanic			0.62 [0.40–0.95]	0.56 [0.41–0.78]
Region				
South	Reference	Reference	Reference	
Midwest	1.35 [1.04–1.74]	1.25 [0.85–1.82]	0.98 [0.67–1.43]	
Northeast	1.36 [1.02–1.80]	1.54 [1.06–2.26]	1.02 [0.64–1.64]	
West	2.05 [1.62–2.59]	1.97 [1.43–2.70]	1.89 [1.24–2.90]	
Income				Reference
≤\$19,999				0.75 [0.44–1.27]
\$20,000–34,999				1.32 [0.90–1.96]
\$35,000–64,999				1.48 [1.03–2.11]
≥\$65,000				
Highest Education Of Either Parent				
Less than High School	Reference	Reference	Reference	
High School	1.89[1.22–2.92]	1.43 [0.79–2.60]	1.55[0.81–2.99]	
Some College	2.31 [1.56–3.43]	2.01 [1.17–3.45]	1.71 [0.89–3.26]	
4 Years College Or More	4.33 [2.92–6.42]	4.39 [2.50–7.69]	3.55 [1.88–6.69]	
Prescription Medication Use in the Last 3 Months	1.51 [1.19–1.92]			
Delayed Health Care Due to Access and/or Economic Barriers			1.50 [1.07–2.10]	
Medical Conditions or Symptoms				
Abdominal Pain				1.73 [1.12–2.68]

	All CAM Use ^a	Mind Body Use ^b	Biologically based therapies ^c	Manipulation/Body Work ^d
Anxiety and Stress	2.54 [1.89–3.42]	4.02 [2.92–5.53]		
Dermatologic	1.35 [1.03–1.78]			
Fever			1.47 [1.08–2.00]	
Insomnia		1.63 [1.11–2.41]	2.60 [1.76–3.85]	
Musculoskeletal	1.94 [1.31–2.87]			3.69 [2.50–5.44]
Nausea and/or Vomiting	1.62 [1.27–2.05]	1.79 [1.32–2.43]		1.49 [1.08–2.05]
Reflux	1.56 [1.07–2.28]		1.72 [1.10–2.69]	
Sinusitis	1.54 [1.11–2.14]		1.45 [1.02–2.05]	

Abbreviations: CAM, complementary and alternative medicine

^a Odds ratios have been adjusted for age, region, parental education, prescription medication use, and medical conditions with a p-value of ≤ 0.05

^b Odds ratios have been adjusted for age, region, parental education, insurance status, and medical conditions with a p-value of ≤ 0.05

^c Odds ratios have been adjusted for age, race, region, parental education, delays in access to medical care, and medical conditions with a p-value of ≤ 0.05

^d Odds ratios have been adjusted for age, race, income, and medical conditions with a p-value of ≤ 0.05