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Use of Complementary Health Practices in a Church-Based African American Cohort

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Abstract

Objectives: Few studies have examined the use of complementary health practices (e.g., mind/body practices and dietary supplements) among African Americans, particularly those who identify as being spiritual and/or religious. Furthermore, research on the health and health behavior profiles of such complementary health users is scant. The purpose of this study was to explore the use of complementary health practices and their lifestyle and health indicator correlates in a large, church-based African American population.

Design: Cross-sectional analysis of 1467 African American adults drawn from a church-based cohort study. Participants reported use of complementary health practices, lifestyle behaviors (e.g., diet and smoking status), and health indicators (e.g., physical health and medical problems). Multiple logistic regressions were conducted to examine associations between lifestyle variables, health indicators, and use of complementary health practices.

Outcome measures: Outcomes included prevalence of mind/body practices (e.g., meditation and Reiki) and dietary supplements (multivitamins) along with health indicator and lifestyle correlates of use.

Results: Use of complementary health practices was high; 40% reported using any mind/body practice and 50% reported using dietary supplements. Poorer physical health was associated with use of mind/body practices, while likelihood of meeting fruit and vegetable recommendations was significantly associated with dietary supplement use.

Conclusions: Complementary health practices were used heavily in a church-based sample of African American adults. Poorer physical health was associated with use of complementary health practices, yet users also displayed health conscious behaviors. Given the high engagement in complementary health practices, it may be prudent to consider adapting complementary health approaches for use in wellness interventions targeting African Americans in faith-based settings.

Keywords: complementary and alternative medicine, African American, spirituality, faith-based

Introduction

Use of complementary health approaches, defined as mind and body practices (e.g., yoga and meditation) and natural products (e.g., dietary supplements),[1] remains common in the United States. Nationally, use of complementary health practices rose markedly from 2002 to 2007[2]; however, more recent data indicate slower growth of these practices since 2007 and overall prevalence being 34% in 2012.[3] Although complementary health practice use is more common among non-Hispanic whites[2,4,5] and less common among African Americans, several studies indicate that African Americans indeed engage in these practices.[6–8]

National estimates of complementary health practice use among African Americans are close to 20%,[3] with community samples reporting prevalence as high as 30%.[9] Within these estimates use of specific practices varies widely, with herbal therapies, relaxation techniques, and prayer being particularly

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prominent[10]; therapies such as massage (4.15%) and chiropractic (3.05%) used less often and other practitioner-based therapies (e.g., hypnosis, Reiki, and acupuncture) used very little (<1%) among African Americans.[2]

A growing literature identifies factors associated with African American engagement in complementary health approaches. As with the general population and other racial/ethnic groups, African Americans are more likely to engage in these practices if they are depressed, report frequent doctor visits, have activity limitations,[8] or have chronic illnesses,[7,11] particularly a medical condition that includes pain.[10,11] Similarly, users of dietary supplements are more likely to have been diagnosed with a disease.[5,12,13]

Few studies have examined how lifestyle behaviors (e.g., nonsmoking) and engagement in complementary health practices covary in African Americans. With African Americans being at higher risk of behaviors that may lead to chronic disease (e.g., poor diet, physical activity, and obesity),[14] understanding these associations may be important to inform interventions. In general, research indicates that those engaging in mind/body practices and dietary supplement use display a more healthy lifestyle, for example, healthy eating, physical activity, lower body mass index (BMI), and nonsmoking behaviors.[5,13,15–17] However, little is known about these associations in racial/ethnic populations[4]; a limited literature indicates positive associations with physical activity[8] in African American samples.

Project CHURCH (Creating a Higher Understanding of cancer Research and Community Health) is a longitudinal cohort study designed to investigate behavioral, social, and environmental cancer risk factors for churchgoing African American adults. The cohort included questions on select complementary health practices, as well as health and lifestyle behaviors, enabling inquiry into a unique and understudied population. Spirituality plays a central role in the lives of African Americans[18,19] and has impact on health and/or approaches to managing health.[20] Largely, religious involvement has shown positive physical and mental health benefits in both the general population and among African Americans.[20–22]

How spirituality may impact behaviors around complementary health use, particularly in African Americans, however is unclear. Some studies have found negative associations in racial/ethnically mixed populations,[23] while others have found use to be positively associated with certain complementary health practices (e.g., meditation and spiritual healing) while negatively associated with others (e.g., Reiki).[24]

The current study aimed to (1) examine uptake of complementary health practices in a spiritual church-based sample of African American adults and (2) explore associations between the use of those practices and healthy lifestyle behaviors (e.g., diet and smoking status) and health indicators (e.g., BMI and self-reported health).

Understanding the health behaviors and choices of African American adults with spiritual leanings is important for several reasons. Notably, it may carry implications for care. Healthcare providers can benefit from understanding which individuals might either be open to or averse to complementary health therapies when developing care plans.[19,24] In addition, faith-based organizations are recognized as important settings for health promotion, education, and other interventions targeting chronic illnesses and their risk factors.[25,26] This is especially true of African American churches, which have historically served as a central aspect of community among many African Americans.[27,28] Scientists and public health practitioners who collaborate with faith-based institutions in the development and/or implementation of health interventions need to understand the type of complementary practices that are commonly used in this population. Finally, this study contributes to the limited data on use of complementary health practices and their behavioral correlates among African Americans, a population constituting a significant percentage of the U.S. population that experiences health disparities.[29]

Materials and Methods

Participants

This study utilized baseline data from the Project CHURCH cohort study. Project CHURCH was conducted in partnership with a large, predominantly African American megachurch; one of the largest in the United States (over 17,000 members). The church has a long history of partnership with MD Anderson Cancer Center (over 10 years), is very active in providing service to the African American community, and is a well-respected institution in the community.

The authors enrolled a convenience sample of 1467 African American adults between December 2008 and July 2009. Participants were recruited using several methods, including displaying print and televised media at the church, networking by Project CHURCH advisory board members with relevant ministries (i.e., with intent of inviting members to participate), and ensuring research personnel availability to make announcements during church services and be present at church health fairs. Eligible participants were at least 18 years old, able to read and write in English, resided in the Houston metropolitan area, had a valid telephone number, and attended the church (membership was not required).

Participants were scheduled for in-person baseline assessments at the church, at which time the study was further described. After consenting and enrolling, participants' height and weight were measured and they then completed a computer-assisted survey. Upon completion of the survey, participants were offered brief health education and could visit the Project CHURCH cancer prevention library (kiosk with health information). Each participant was compensated with a $30 Visa Debit Card following survey completion. All study procedures were approved by a church advisory board and the University of Texas MD Anderson Cancer Center's Institutional Review Board.

Measures

Complementary health practices. Complementary health practices were separated into use of mind/body practices and the use of dietary supplements as these practices cover a wide range of philosophies, approaches, therapies, and systems of care.[1,6]

Mind and body practices. Participants were asked if they used or saw a provider or practitioner for the following therapies during the past 12 months (yes/no): acupuncture, chiropractic, hypnosis, energy healing therapy/Reiki, and massage. Participants were also asked if they used meditation during the past 12 months (yes/no). Participants were invited to check any

response that applied. The authors classified ''Users'' as participants who selected at least one of the therapies and ''Nonusers'' if they did not select any of the therapies.

Dietary supplements. Participants were asked how often they took ''one a day, theragran, centrum, or other multivitamins'' over the past 12 months. Responses ranged from ''never'' to ''everyday.'' Responses were dichotomized into ''Users'' (1–3 days per week or more) or ''Nonusers'' (<1–3 days per week). For the purposes of this study, the authors defined dietary supplements as being use of multivitamins only.

Lifestyle variables. *Fruit and vegetable consumption* was assessed with the National Cancer Institute Five-A-Day fruit and vegetable questionnaire.[30] This questionnaire yielded a continuous variable of daily fruit and vegetable servings that was highly skewed. Because of this, the authors chose to focus on a binary outcome whereby participants were classified as meeting recommendations for daily intake (≥5 servings of fruits and vegetables a day) or not meeting recommendations for daily intake (<5 servings of fruits and vegetables a day). This measure has demonstrated adequate convergent validity with more comprehensive dietary intake measures[31,32] and has been used previously among African American church-based samples.[33,34]

Physical activity was assessed with the International Physical Activity Questionnaire–Short Format (IPAQ), which is a self-report questionnaire used to measure the amount of time spent in moderate activity, vigorous activity, and walking during the past 7 days.[35] Weekly minutes spent engaging in each type of activity were multiplied by the corresponding metabolic equivalent (MET) value, which is a metric used to quantify energy expenditure (i.e., the ratio of energy expended during an activity to the energy expended during rest).[36] Then, MET minutes were summed to arrive at the total weekly MET minutes spent in physical activity. Again, the resulting data were highly skewed. Thus, the authors chose to classify participants as engaging in low, moderate, or high rates of physical activity during the previous week based on total weekly MET minutes, the number of days per week engaged in physical activity, and the amount of time spent in each type of physical activity for their main analyses (see guidelines for data processing and analysis of the IPAQ, 2005).

Current smokers were defined as those who reported smoking ≥100 cigarettes during their lifetime and reported currently smoking every day or some days.[37] *Alcohol use* was assessed using the Alcohol Quantity and Frequency Questionnaire, a self-report measure of the average alcohol consumption on each day of the week over the last 30 days. Males were classified as at-risk drinkers if they consumed an average of >14 drinks per week, and females were classified as at-risk drinkers if they consumed an average of >7 drinks per week.[38]

Health indicators. *Obesity* was calculated using staff-administered height and weight measurements, which were converted to BMI (kg/m^2). Self-reported *physical health* was measured using the 12-item Medical Outcome Survey (MOS) Short Form 12 (SF-12) Physical Components Summary.[39] Respondents specified whether or not they experienced certain physical limitations within the past 4 weeks. Self-reported *mental health* was assessed with the 12-item MOS SF-12 Mental Components Summary.[39] Participants indicated whether or not they experienced certain emotional problems in the past 4 weeks. The SF-12 contains categorical questions, as well as questions with Likert response formats. Total scores range from 0 to 100 and are calculated using a scoring algorithm recommended by the MOS; higher scores indicate better perceived physical and mental health.[39]

The authors also assessed the extent of illness present in their sample. Participants were asked if they had any of the following *medical problems* in the past 12 months: diabetes, cancer, heart disease, high blood pressure, asthma/lung disease, stroke, high cholesterol, or thyroid problem and instructed to check as many problems that applied. For analysis purposes, responses were dichotomized as ''1 or more medical problems'' or ''none.'' The authors assessed *stress* using the PSS-4 (Perceived Stress Scale-4), a 4-item scale designed to measure the degree to which respondents find their lives to be stressful.[40] Participants indicate how often they experienced certain stressful situations in the past month. Items are rated on a 5-point scale with responses ranging from 0 = ''never'' to 4 = ''very often.'' Responses were summed and range from 0 to 16, with higher scores indicating greater perceived stress.

Depressive symptoms were assessed using The Center for Epidemiologic Studies Depression Scale (CES-D),[41] a 10-item self-report measure of depressive symptomatology. The CES-D was designed to measure the degree of depressive symptoms experienced in the last week in nonclinical populations. Response categories range from: 0 = ''rarely or none of the time (<1 day)'' to 3 = ''all the time (5–7 days).'' Responses are summed and total scores range from 0 to 30, with higher scores indicating more depressive symptoms. A cutoff score of 10 or higher was used to signify a positive screen for depression.

Demographics. Demographic variables were self-reported and included age, gender, education (up to high school, Associates Degree, Bachelor's Degree, or higher), marital status (married or not married), Annual combined household income (up to $39,999, $40,000–$79,999, or $80,000 or more), health insurance (private, public, or not insured), and presence of continuous health insurance coverage over the past year.

Statistical analysis

Analyses were conducted using IBM SPSS Statistics v. 24. First, frequencies were calculated for each mind/body practice and use of dietary supplements. Next, frequencies or means were calculated for demographic variables, predictor, and outcome variables. Chi-square analyses were conducted to examine associations between mind/body practices and supplement use and the categorical variables. Comparisons of continuous independent variables (e.g., BMI) with the dependent variables (mind/body practices and dietary supplement use) were examined using one-way ANOVA. Logistic regression analyses were conducted to examine associations between the dependent variables (supplement, mind/body) and each lifestyle and health indicator variables.

Models were examined with adjustment for basic demographic variables such as age, gender, education, marital status, and annual household income (Model 1). Control variables were selected due to significance in previous research[2,10] and because of their associations with both mind/body practices and dietary supplement use in bivariate analyses. Final multiple logistic regression models were ran with all

independent variables emerging as significant predictors in the logistic models for mind/body use and dietary supplement use (Model 2), controlling for the covariates.

Results

Demographics, complementary health practices, and spirituality

The sample reported high levels of spirituality. Participants were asked the extent of their agreement on nine statements positively representing spirituality[42] and a large majority (over 85%) agreed or strongly agreed with them all (e.g., ''My spiritual beliefs are the foundations of my whole approach to life'') (data not shown). Table 1 presents demographics of the sample and use of complementary health practices. The sample was mostly female, with just over 40% reporting being married. Nearly half of the sample had a bachelor's degree or higher, and a third reported household incomes of $80,000 or more. Most of the sample was privately insured with just over 80% reporting continuous insurance. About 40% reported use of any of the mind/body practices, and half reported taking dietary supplements 1–3 days a week or more. Of the mind/body practices, massage, meditation, and chiropractic were most commonly used.

Table 1. Demographics, Mind/Body Practices, and Spirituality ($N = 1467$)

Variable	*% or avg. (SD)*
n	1467
Age, years	45.2 (12.9)
Gender	
Male	25.4
Female	74.6
Education	
Up to high school	12.3
Assoc degree	39.2
Bachelors or higher	48.4
Marital status	
Married	43.5
Not married	56.5
Income	
Up to 39,999	25.3
40,000–79,999	39.4
80,000 or more	35.3
Type of insurance	
Private	61.9
Public	23.3
Not insured	14.9
Continuously insured?	
Yes	80.9
No	19.1
Mind/body practices	
Massage	28.2
Meditation	10.8
Chiropractic	8.0
Acupuncture	2.3
Energy healing (Reiki)	1.9
Hypnosis	0.3
Any mind/body practice	40.4
Dietary supplement use (≥1–3 days/week)	50.3

Demographic variables by complementary health practice use are presented in Table 2. With the exception of health insurance, significant differences between users and nonusers of mind/body practices and/or dietary supplement use were observed for all sociodemographic variables. Of note, dietary supplement users were older and female, while a higher percentage of mind/body practice users were married. Both mind/body practice and dietary supplement users were in the higher income brackets and held bachelor degrees or higher.

Lifestyle and health indicator variables and complementary health practice use

Table 3 presents the crude prevalence of the sample's lifestyle behaviors and health indicators by use of complementary health practices. Lifestyle behaviors did not differ between users and nonusers of mind/body practices; however, health indicators differed between the two groups. Those reporting use of mind/body practices had lower physical health ($p = 0.001$) and more medical problems ($p = 0.032$). By contrast, lifestyle behaviors differed between those who took dietary supplements and those who did not. Dietary supplement users were more likely to meet recommendations for daily fruit and vegetable intake ($p = 0.002$), were not current smokers ($p = 0.002$), and were not heavy drinkers ($p = 0.027$). Furthermore, more dietary supplement users had medical problems ($p = 0.004$), while less reported depressive symptoms ($p = 0.008$). Perceived stress was lower among dietary supplement users ($p < 0.001$).

Table 4 presents odds ratios (ORs) of lifestyle behaviors and health variables and the complementary health practices. Model 1 was adjusted for demographic variables (age, gender, education, marital status, and income), and Model 2 was adjusted for demographic variables plus significant lifestyle and/or health indicator variables emerging from Model 1. No significant associations were found between lifestyle behaviors and use of mind/body practices; however, several associations were found with indicators of health. Participants with higher ratings of physical health were less likely to engage in mind/body practices (OR 0.97, confidence interval [CI] 0.96–0.99). In addition, those with more medical problems (OR 1.3, CI 1.02–1.70), higher stress (OR 1.04, CI 1.01–1.08), and depressive symptoms (OR 1.30, CI 1.01–1.70) were more likely to engage in mind/body practices.

When all significant predictors were included in the model (Model 2), only physical health remained significantly associated with use of mind/body practices (OR 0.98, CI 0.97–0.99). Regarding dietary supplements, those meeting fruit and vegetable recommendations (OR 1.52, CI 1.1–1.21) and reporting vigorous physical activity levels (OR 1.3, CI 1.01–1.8) were more likely to use dietary supplements. Those with higher stress levels were less likely to report taking dietary supplements (OR 0.96, CI 0.92–0.99). In Model 2, only fruit and vegetable consumption (OR 1.38, CI 1.01–1.88) remained significantly associated with dietary supplement use.

Discussion

The purpose of this article was to examine use of complementary health practices in a spiritual church-based sample of African American adults and explore associations between their use and healthy lifestyle behaviors and health

Table 2. Mind/Body Practice and Supplement Use

	Mind/body practice use, % or avg. (95% CI)[a]			*Dietary supplement use, % or avg. (95% CI)*[a]		
	Yes, n = *593*	*No,* n = *874*	p	*≥1–3 days/week.* n = *738*	*<1–3 days/week,* n = *728*	p
Age, years	45.7 (44.7–46.7)	44.8 (43.9–45.7)	0.209	47.9 (47.1–48.8)	42.4 (41.4–43.3)	**<0.001**
Gender			0.130			**<0.001**
Male	23.3 (19.9–26.9)	26.8 (23.9–29.8)		21.4 (18.5–24.6)	29.4 (26.1–32.9)	
Female	76.7 (73.1–80.1)	73.2 (70.2–76.1)		78.6 (75.5–81.5)	70.6 (67.2–73.9)	
Education			**0.005**			**<0.001**
Up to high school	11.3 (8.9–14.1)	13.1 (10.9–15.5)		7.5 (5.7–9.6)	17.3 (14.7–20.3)	
Assoc degree	35.1 (31.2–39.1)	42.0 (38.7–45.4)		37.7 (34.2–41.3)	40.9 (37.3–44.5)	
Bachelors or higher	53.6 (49.5–57.7)	44.9 (41.6–48.3)		54.9 (51.2–58.5)	41.8 (38.2–45.5)	
Marital status			**0.017**			0.067
Married	47.3 (43.2–51.4)	41.0 (37.7–44.4)		45.9 (42.3–49.6)	41.2 (37.6–44.9)	
Not married	52.7 (48.6–56.8)	59.0 (55.7–62.3)		54.1 (50.4–57.7)	58.8 (55.1–62.4)	
Income			**0.001**			**0.007**
Up to 39,999	22.2 (18.9–25.8)	27.4 (24.4–30.6)		22.2 (19.2–25.4)	28.5 (25.2–32.0)	
40,000–79,999	36.6 (32.7–40.7)	41.3 (38.0–44.7)		39.3 (35.7–42.9)	39.5 (35.9–43.2)	
80,000 or more	41.1 (37.1–45.3)	31.2 (28.1–34.5)		38.5 (35.0–42.2)	32.0 (28.5–35.6)	
Type of insurance			0.148			0.144
Private	64.7 (60.7–68.6)	59.9 (56.6–63.2)		64.3 (60.7–67.8)	59.3 (55.6–62.9)	
Public	20.9 (17.7–24.4)	24.9 (22.0–27.9)		21.8 (18.9–25.0)	24.8 (21.7–28.1)	
Not insured	14.4 (11.6–17.5)	15.2 (12.9–17.8)		13.9 (11.4–16.6)	15.9 (13.3–18.8)	
Continuously insured?			0.052			0.085
Yes	83.3 (80.1–86.2)	79.2 (76.4–81.9)		82.6 (79.7–85.3)	79.1 (76.0–82.0)	
No	16.7 (13.8–19.9)	20.8 (18.1–23.6)		17.4 (14.7–20.3)	20.9 (18.0–24.1)	

Bold indicate significance at $p < .05$.
[a]CIs for proportion were calculated using CLOPPER–PEARSON method.
CI, confidence interval.

indicators. The authors found fairly high usage of complementary health practices and that use of mind/body practices was related to physical and mental health while dietary supplement use correlated primarily with healthy lifestyle behaviors.

Estimates of complementary health use are <30% among African Americans in prior studies, considering a large number and wide range of practices ($n = 17$).[11] This study's estimate was considerably higher (40%) despite defining complementary health using a fairly narrow set of six practices. The authors speculate several reasons for their high prevalence. First, it may be an openness in this faith-based sample to holistic approaches to health. Studies have found that African Americans identifying as religious/spiritual used complementary health practices because it was consistent with their beliefs and/or wanted a natural complementary approach to care.[19,43] Furthermore, studies in mixed samples have found that persons identifying as spiritual or with beliefs in God or a higher spiritual power were more likely to use certain complementary practices such as meditation and spiritual healing.[24,44]

Next, the higher prevalence may have been driven by use of massage therapy, which was reported by nearly 30% of the sample and far higher than estimates in the United States (~7%) and in other estimates in African Americans (4%).[2,3,45] Reasons for elevated use in this sample are not clear. Overall, African Americans are less likely to use massage therapy than non-Hispanic Whites; however, the sociodemographic profile of this sample (i.e., high education and income) matches characteristics of typical users of massage.[45]

Use of meditation (10%) was also high in their sample yet similar to recent national estimates (8%).[3] Both massage therapy and meditation are used to reduce stress and anxiety and treat pain,[45,46] common ailments in African American populations.[47,48] Complementary health, and particularly massage and meditation, may be seen as viable mechanisms for stress relief or sought out for increasing wellness in their sample. Their sample may also have the financial resources to seek such therapies as they are largely considered out-of-pocket health expenses.[45] Finally, similar to previous research the authors found lower use of certain practices. Acupuncture, energy healing, and hypnosis were used by <5% of the total sample, consistent with Brown et al.[10] who found use of therapies outside of prayer, herbals, and relaxation to be <8% among African Americans.

Uptake of mind/body practices was associated mainly with physical and mental health and unrelated to lifestyle variables. The authors found poorer physical health, having at least one medical problem, higher stress levels, and depressive symptoms to be associated with use of mind/body practices in univariate analysis. Complementary health users reporting poorer physical health are consistent with prior research. Several studies confirm that African Americans who report medical conditions are more likely to use complementary health practices[8,10,49] and that across all racial groups use is

Table 3. Lifestyle and Health Indicator Variables and Mind/Body Practice and Multivitamin Use, $N = 1467$

	% or avg. (95% CI)[a]	*Mind/body practice use, % or avg. (95% CI)*[a]			*Dietary supplement use, % or avg. (95% CI)*[a]		
	Sample	*Yes*	*No*	p	*≥1–3 days/week*	*<1–3 days/week*	p
Lifestyle variables							
FV consumption				0.389			**0.002**
Met recommendation	16.4 (14.5–18.4)	17.4 (14.4–20.7)	15.7 (13.3–18.3)		19.2 (16.5–22.3)	13.3 (10.9–16.0)	
Did not meet recommendation	83.6 (81.7–85.5)	82.6 (79.3–85.6)	84.3 (81.7–86.7)		80.8 (77.7–83.5)	86.7 (84.0–89.1)	
Physical activity level				0.421			0.393
Low	27.7 (25.4–30.2)	26.0 (22.4–29.8)	28.9 (25.8–32.2)		26.4 (23.2–29.8)	29.1 (25.7–32.6)	
Moderate	29.2 (26.8–31.6)	29.2 (25.4–33.1)	29.2 (26.1–32.4)		28.8 (25.5–32.3)	29.5 (26.1–33.1)	
Vigorous	43.1 (40.5–45.8)	44.9 (40.7–49.1)	41.9 (38.5–45.4)		44.8 (41.1–48.6)	41.4 (37.7–45.2)	
Current smoker?				0.073			**0.002**
Yes	8.9 (7.5–10.5)	7.3 (5.3–9.7)	10.0 (8.1–12.2)		6.6 (4.9–8.6)	11.2 (9.0–13.8)	
No	91.1 (89.5–92.5)	92.7 (90.3–94.7)	90.0 (87.8–91.9)		93.4 (91.4–95.1)	88.8 (86.2–91.0)	
At-risk drinker?				0.238			**0.027**
Yes	5.1 (4.0–6.3)	4.2 (2.8–6.2)	5.6 (4.2–7.3)		3.8 (2.5–5.4)	6.3 (4.7–8.4)	
No	94.9 (93.7–96.0)	95.8 (93.8–97.2)	94.4 (92.7–95.8)		96.2 (94.6–97.5)	93.7 (91.7–95.3)	
Health indicators							
BMI, kg/m^2	31.6 (31.2–31.9)	31.4 (30.8–31.9)	31.7 (31.2–32.2)	0.391	31.6 (31.1–32.1)	31.5 (31.0–32.1)	0.827
Physical health (PCS)	48.7 (48.2–49.1)	47.7 (46.9–48.5)	49.3 (48.7–49.9)	**0.001**	48.8 (48.1–49.4)	48.6 (47.9–49.2)	0.644
Mental health (MCS)	50.5 (49.9–51.0)	50.1 (49.2–50.9)	50.7 (50.1–51.4)	0.235	50.9 (50.1–51.6)	50.0 (49.3–50.8)	0.109
Number of medical problems				**0.032**			**0.004**
One or more	61.8 (59.3–64.3)	65.1 (61.1–69.0)	59.6 (56.2–62.9)		65.4 (61.9–68.9)	58.2 (54.5–61.8)	
None	38.2 (35.7–40.8)	34.9 (31.0–38.9)	40.4 (37.2–43.8)		34.6 (31.1–38.1)	41.8 (38.2–45.6)	
Perceived stress	4.6 (4.4–4.8)	4.74 (4.5–5.0)	4.5 (4.3–4.7)	0.130	4.3 (4.0–4.5)	4.9 (4.7–5.2)	**<0.001**
Depression				0.090			**0.008**
Yes	18.8 (16.8–20.9)	20.9 (17.7–24.4)	17.4 (14.9–20.1)		16.1 (13.6–19.0)	21.5 (18.6–24.7)	
No	81.2 (79.1–83.2)	79.1 (75.6–82.3)	82.6 (79.9–85.1)		83.9 (81.0–86.4)	78.5 (75.3–81.4)	

Bold indicate significance at $p < .05$.
[a]CIs for proportion were calculated using CLOPPER–PEARSON method.
BMI, body mass index; CI, confidence interval; MCS, Mental Components Summary; PCS, Physical Components Summary.

Table 4. Adjusted Odds Ratios for Lifestyle Behaviors/Health Indicators and Mind/Body Practice/Supplement Use

	Mind/body practice, OR (95% CI)		*Dietary supplement use, OR (95% CI)*	
	Model 1[a]	*Model 2*[b]	*Model 1*[a]	*Model 2*[b]
Lifestyle variables				
FV consumption (≥5 svg/day)	1.19 (0.90–1.60)		**1.52 (1.10–2.10)**	**1.38 (1.01–1.88)**
Physical activity level				
Low	1.00		1.00	
Moderate	1.10 (0.8–1.50)		1.00 (0.70–1.30)	0.97 (0.72–1.31)
Vigorous	1.30 (0.9–1.70)		**1.34 (1.01–1.80)**	1.27 (0.95–1.68)
Current smoker	0.85 (0.6–1.30)		0.73 (0.50–1.10)	
At-risk drinker	0.78 (0.5–1.30)		0.62 (0.37–1.04)	
Health Indicators				
BMI	0.99 (0.98–1.00)		0.99 (0.97–1.01)	
Physical health	**0.97 (0.96–0.99)**	**0.98 (0.97–0.99)**	1.01 (0.99–1.02)	
Mental health	0.99 (0.98–1.00)		1.00 (0.99–1.01)	
≥1 medical problem	**1.30 (1.02–1.70)**	1.18 (0.92–1.51)	1.00 (0.80–1.30)	
Perceived stress	**1.04 (1.01–1.08)**	1.02 (0.98–1.07)	**0.96 (0.92–0.99)**	0.97 (0.93–1.00)
Depressed	**1.30 (1.01–1.70)**	1.15 (0.83–1.61)	0.82 (0.60–1.10)	

Bold indicate significance at $p < .05$.
[a]Model 1 adjusted for age, gender, education, marital status, and income.
[b]Model 2 adjusted for all variables in Model 1 plus significant predictor variables in Model 1.
BMI, body mass index; CI, confidence interval; OR, odds ratio.

highest among those with existing health conditions, poor perceived health, and functional limitations.[16,50] Use may be due to shortcomings of conventional medicine, delayed care, or as a means to complement conventional medicine.[2,50] Whether such reasons are applicable to this spiritual African American population needs further study; given the higher levels of engagement in specific practices there may be unique motivations for use.

The authors found that dietary supplement use was mainly correlated with lifestyle variables, such as fruit and vegetable consumption, physical activity, not being a current smoker, and lower levels of at-risk drinking in univariate analysis. These results are not surprising, given prior literature consistently associating dietary supplement use with such healthy behaviors. These associations, however, have been established primarily in non-Hispanic white samples.[5,12,13,15,17,51] Prior research examining complementary health practices, and specifically multivitamin use, and prevention behaviors exclusively among African Americans has been limited.

Given that fruit and vegetable consumption was the only significant health behavior in the multivariate analyses, the cluster of behaviors typically associated with complementary health use[15,17] may be different among African Americans. Consuming fast food at a higher frequency has been associated with less likelihood of multivitamin use[52]; however to the authors' knowledge, this is the first study to suggest associations between fruit and vegetable intake and use of a dietary supplement (i.e., multivitamin) as a complementary health practice in African Americans. Studies have identified megavitamins, herbals, yoga, and relaxation as alternative practices used by African Americans for general disease prevention purposes.[8,10] Further research is needed to understand how diet and other healthy behaviors associate with tendency to use complementary health practices among African Americans.

This study's findings contrast with the literature regarding physical activity and complementary health use. Previous studies have found physical activity to be correlated with complementary health use, even after adjustment for a wide number of practices (although only one of these studies focused on African Americans).[8,9,16] More research is needed to understand how physical activity may be associated with complementary practice use, particularly among African Americans. The authors also did not find any associations between obesity and use of complementary health practices. This has not been examined previously among African Americans; however, national data indicate that obese individuals are less likely to use complementary health approaches.[16,45]

The present study had several strengths and limitations. Strengths include a large sample of spiritual African Americans and broad measurement of lifestyle behaviors and health indicators, unique for a study focusing on use of complementary health practices. Unlike previous studies relying on self-report of religiosity and/or spirituality, all participants of this study actually attended a denominational church. This study is limited in its use of cross-sectional design; no inferences can be made about causality. In addition, their behavioral measures were self-reported, which may have been inaccurately reported,[53–55] and the dependent variable is reliant on accurate recall of complementary health practice use over the past 12 months.

This study defined complementary health practices by a small number of mind/body practices and use of only one type of dietary supplement (multivitamins). The authors did not ask about the most common complementary health practices such as nonvitamin and nonmineral supplements (e.g., fish oil and herbal supplements), deep breathing, or yoga.[3] The authors also did not ask about complementary health practices that may be specific to African Americans such as prayer for health, garlic, herbs, or folk medicine.[7,49] Future research should expand measurement of complementary health behaviors to fully understand the use of practices in this population and its association with lifestyle and health behaviors.

The high estimate of complementary health use may have been skewed by the elevated use of massage therapy in this sample. Future work in this area should include assessment of the different types of massage therapy, which may yield additional insight on use of this practice in this population. Finally, while this large sample of African Americans was unique, it was also predominantly female, highly educated, and higher income. These results reflect associations for a spiritual African American population, but may not reflect the experience of all African Americans. Future research should also examine use of complementary health practices in African Americans across a wider spectrum of income and education levels with varying spiritual leanings to be more representative of this population.

The findings of this study have clinical and practical implications. The results highlight that use of certain complementary health practices is high in this church-based sample of African Americans, particularly among those with physical health issues. Minority populations may use complementary health practices due to failure of conventional medicine and/or inadequate patient–physician communication,[6,43] which underscores the need for accurate and culturally competent education about risks and benefits of practices.

Education is particularly important for this group as skepticism about use and benefits has been reported among African Americans.[56] Finally there may be opportunity for adapting complementary health approaches (e.g., massage chairs and meditation Internet-based applications) into health and wellness interventions in spiritual or faith-based settings serving African Americans. Introducing alternative therapies that can address issues like stress and improve physical health may be appealing to members of faith-based organizations and could be adapted to fit within a spiritual framework.

Conclusions

Complementary health practices were used heavily in a church-based sample of African American adults, with those reporting low physical health or displaying a more healthy dietary profile as being the most likely users. Future research should continue to explore use of complementary practices among African American populations, and research is needed on how these practices influence the overall health of minority populations.

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