

The Use of Complementary and Alternative Medicine (CAM) by African American  
(AA) and Caucasian American (CA) Older Adults in a Rural Setting: a Descriptive,  
Comparative Study

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Keywords: Complementary and Alternative Medicine (CAM), older adult, rural

### Abstract

**Background:** There is little research that compares the use of CAM in older adults by race in rural settings. The purpose of the study was to determine if there was a difference between African American and Caucasian American rural older adults on use of CAM and self-reported satisfaction with CAM.

**Methods:** The design was a descriptive, comparative study of 183 older adults who reported the number of CAM used and satisfaction with CAM. A convenience sample was recruited through community service organizations in the state of Mississippi. The availability of older adults through the support groups, sampling bias, subject effect, and self-report were limitations of the study.

**Results:** The common uses of CAM for rural older adults were prayer, vitamins, exercise, meditation, herbs, chiropractic medicine, glucosamine, and music therapy. Significant findings were found on SES ( $p = .008$ ,  $F = 3.049$ ,  $df = 6$ ) and marital status ( $p = .042$ ,  $F = 4.201$ ,  $df = 1$ ). Demographic differences between African American and Caucasian American rural older adults were significant for age ( $p = .003$ ), education ( $p = .000$ ), and the use of glucosamine ( $p = .002$ ).

**Conclusions:** Findings suggest that older adults are using CAM and are satisfied with their use. Identifying different uses of CAM by race and how use of affects how health care may be provided.

## Background

An increasing number of people are using complementary and alternative medicine (CAM) in our country. According to recent studies, 42.1 % of the American population uses some form of CAM, with 39% of the older population using CAM [1, 2]. In 1997, total spending on CAM was estimated at \$32.7 billion dollars, up from \$22.6 billion in 1990, a substantial increase that indicates an escalating portion of the population is seeking CAM [2]. Patients may choose to use CAM as a substitute or in conjunction with conventional medicine for a variety of reasons, including 1) dissatisfaction with health care providers and medical outcomes, 2) side effects of drugs or treatments, 3) high health costs (specifically medications), 4) lack of control in their own health care practices, and 5) impersonal and technological health care [3, 4].

In reviewing the literature, research studies have not been representative of the use of CAM among rural residents, older adults, or culturally diverse groups. In rural settings, limited access to medical care often leads to late diagnosis, postponement of treatment, and greater impairments. The older population is a group that has more chronic illnesses, takes longer to recover when sick, and often needs more health care services than their younger cohorts, resulting in the use of CAM that may be influenced by folklore and cultural beliefs. Understanding choices of CAM use is critical to provide optimal care to older, rural patients as certain remedies may be harmful or interfere with conventional medicine.

With the increase in the older population and the number of persons who are choosing the use of CAM, there has been a demand for research to examine the feasibility, benefits, clinical usefulness and development of CAM interventions in older adults. A large proportion of older adults are interested in learning more about

CAM and the benefits to health [3]. However, there is very little research that describes the use of CAM in minority older adults. Therefore, the purpose of this study was to compare older African Americans (AA) and Caucasian Americans (CA) on 1) use of CAM and 2) self-reported overall satisfaction with CAM being used.

### *Rural Health and CAM*

Patients in rural areas experience a variety of unmet needs partly due to limited access to primary care, fewer resources to choose from, lower income, less comprehensive health coverage, ill-equipped or poorly staffed health care agencies, and geographic isolation [5]. Rural health care providers often have difficulty in delivering services that target persons with special health care needs, like older adults [6]. Poverty (income) is more widespread in rural areas and even higher among rural minorities, with 35.2% of rural AA living in poverty compared to 26.9% of urban AA. Private health insurance coverage is more common for residents of urban areas while Medicare spends more per capita on urban beneficiaries (\$5,288) than rural beneficiaries (\$4,375) [7]. All of these factors may contribute to the use of complementary and alternative therapies that may not be widely accepted in conventional medicine. An estimated 29.5% of community dwelling older adults use at least one form of CAM with women more likely than men to use CAM [8].

### *Older adults and CAM*

By the year 2020, older adults will make up 25% of the total population. Because of a predicted increase in chronic conditions, older adults may be choosing to use CAM more often than previously to help manage their health. Lack of information is available regarding specific costs, benefits, risks, or precautions pertinent to the older adult. Few CAM therapies have FDA regulations to guide choices made about CAM.

The most commonly used CAM by the older adult has been reported as chiropractic medicine, herbal remedies, relaxation techniques, megavitamins and religious or spiritual healing [9]. Several reports describe clinically significant interactions between herbals/supplements and prescription medications [1, 10]. There is a lack of studies related to appropriate dosage and mechanisms of CAM practices in older adults [11]. The use of herbal remedies (ginkgo biloba and ginseng), vitamins, music therapy, touch, massage therapy, and neurofeedback have benefit in the older adult with implications for improved cognitive function [12]. The demographic correlates that predict the use of CAM are gender (females use more CAM than men) and education (the higher educated use CAM more often) [13].

In a recent study describing members of Shield 65, a Blue Shield Medicare supplement that offers CAM coverage for people over 65, 41% of older adults used some form of CAM, with 80% reporting some improvement in their health conditions. Of the older adults who did use CAM, 58% reported they did not discuss the use of CAM with their medical doctor or health care practitioner [13].

In a study examining use of CAM in the older adult, more women and fewer African Americans and Hispanics were represented in the sample. These older adults who use CAM cited arthritis, back pain, heart disease, allergies, and diabetes as reasons using CAM [9].

### *Cultural Diversity and CAM*

Cultural diversity and the health care practices specific to a culture can shape the system of health care in a country. The assumption that conventional medical practice is the choice for all races is incorrect. CAM health care practices in the United States have broadened due to an influx of cultures, values, and beliefs [4, 14]. Exposure of U.S. citizens to other cultures and cultural healing methods, as well

as documented effectiveness of CAM used in different cultures, has spawned interest in CAM in this country. There is little research addressing CAM modalities with origins in racial healing practices and folklore. Most of the CAM surveys include middle class, Caucasian, educated subjects, excluding how race may influence the use of CAM. The inclusion of folk remedies is often ignored or not discussed.

Race has been reported to affect the choices of CAM [15]. Older women in all cultural groups have expressed more satisfaction with use of CAM than younger women [8, 16, 17]. It is estimated that 83% of minority patients who use CAM do not report it to their physician [17].

There is a gap in the literature on the use of CAM by older adults of different racial backgrounds. This study was undertaken to provide preliminary information for future research on the measurements of outcomes and evidenced based practice in relation to the use of CAM in older adults of different races. The research questions were:

- What CAM modalities are being used by rural older adults?
- Is there a difference in the use of CAM modalities between AA and CA older adults?
- Is there a difference in satisfaction of CAM use between AA and CA older adults?

### *Definition of Terms*

The following terms were operationally defined for the study:

- Complementary and Alternative Medicine (CAM): for the purpose of this study, CAM, as defined by the National Center for Complementary and Alternative Medicine (NCCAM), “is a group of diverse medical and health care

systems, practices, and products that are not presently considered to be part of conventional medicine.” [18].

- CAM modality use: for the purpose of this study, CAM use was identified in demographic data as a self report. CAM modality use was presented as a list based on five modalities of NCCAM [18] and the top CAM use reported in the literature. Participants were asked to circle which CAM they used, as many as they used. An open ended option of “other” was provided for CAM not listed (see Table 2 for list). Participants could circle the use of herbs or vitamins, but did not specify which herbs or vitamins were being used.
- Satisfaction with CAM: for the purpose of this study, an overall level of satisfaction with CAM modality (or modalities) being used was reported as satisfaction with CAM. There were no measurements for satisfaction of each specific CAM the older adults used.

## **Methods**

### *Sample and Setting*

The study design was descriptive, comparative, and cross-sectional. A convenience sample of rural AA and CA older adults (over 50 years old) was recruited from Gulfport, Biloxi, Laurel, Hattiesburg, Natchez, Jackson, and Meridian during 10 community service organization meetings in the state of Mississippi, including American Association of Retired Persons, the retired employees of the Southern Pine Electric Power Association known as the Golden Pine Cones Club, and the Retired Seniors Volunteer Group from the local community hospital. The sample consisted of 40 AA and 143 CA older adults who volunteered to be participants. The availability of older adults through these support groups, sampling bias, subject effect, and self-report were identified as limitations of the study. The

Institutional Review Board (IRB) approval for human subjects protection was obtained.

### *Instruments*

Demographic data included age, gender, race, marital status, socioeconomic status (SES), education, and out of pocket expenses spent on CAM. The use of CAM in the older adult's health care practices was measured using the five modalities identified by the National Center of Complementary and Alternative Medicine (alternative medical systems, mind body interventions, biologically based therapies, manipulative/body based methods, and energy therapies). Based on the review of the literature and the most often used CAM, a list was provided for the participants to circle the CAM used. An option was given as "other" to assess any CAM use not listed. An overall rating of satisfaction with the CAM used was measured with a Likert scale (1-11). The higher the score, the more satisfied with the CAM.

### *Procedure*

Community agencies for older adults were contacted throughout the state to ask for participation in the project. An educational program about the use of CAM was presented at the meetings entitled, "What Everyone Should Know About CAM". The program was presented after the collection of data. Topics that were discussed included a brief overview of the following topics: 1) definition of CAM, 2) history of CAM, 3) choosing to use CAM, 4) safety and effectiveness of CAM, 5) contraindications in CAM, 6) choosing a practitioner in CAM, 7) cost, and 8) consulting a health care provider. Information was presented in an unbiased format (neither supportive or opposed to CAM) with the goal to provide general information on CAM to the older adults.

At the beginning of the support group meetings, older adults were asked to complete the questionnaires. Participation was strictly voluntary and written consent was obtained. Confidentiality was assured by assigning identification numbers matching the consent form with the questionnaire. If the older adult agreed to be in the study, the instrument was filled out at the beginning of the meeting. There was no penalty if anyone decided not to participate in the research project. All were invited to stay for the presentation, whether they did or did not participate in the study. After the older adults had answered the questionnaire, the educational presentation was started.

### **Results**

Demographic data were collected on the older adults who agreed to complete the questionnaire on age, gender, race, marital status, SES, education, and out of pocket expenses spent on CAM (Table 1). Chi square analysis was calculated on race and the demographic variables, with significant findings for age ( $p = .003$ ) and education ( $p < .001$ ). AA in the group were older and less educated than CA. CAM use was more prevalent in the 50-60 year old age group for the CA ( $n=7$ ) than for the AA ( $n=0$ ). A significant difference was seen with education with 40% of CA ( $n = 56$ ) having high school education and higher compared to only 15% ( $n = 6$ ) for AA.

Data was collected on the older adults who chose to participate ( $n = 183$ ; 49%) and agreed to answer the questionnaire. Significant overall differences between the AA and CA were found on SES ( $P = .008$ ,  $F = 3.049$ ,  $df = 6$ ) and marital status ( $p = .042$ ,  $F = 4.201$ ,  $df = 1$ ). In the SES ranking, only 13 CA (14%) reported an income of \$40,000 or greater with 13 CA older adults (11%) compared to only one AA (3%). A higher percentage of older AA adults were single (62.5%) compared to CA (57%).

Participants were asked to circle the CAM they used on a list provided (see Table 2 for CAM list provided). The mean number of CAM used by the participants who answered the questionnaire was 3.8 (SD = 2.14). The range of number of CAM used by each participant was 1-12. Overall, CA used more CAM products than AA with CA using an average of 3.9 CAM products and AA using 3.4 CAM products per person. AA did not use glucosamine as often as CA ( $p=.002$ ).

The most commonly used CAM reported were prayer ( $n= 155$ ), vitamins ( $n=151$ ), exercise ( $n= 117$ ), meditation ( $n= 44$ ), herbs ( $n= 43$ ), chiropractic medicine ( $n=30$ ), glucosamine ( $n= 28$ ), and music therapy ( $n=21$ ). The use of CAM is seen in Table 2.

Participants were asked to rate their satisfaction on a Likert scale of 1-11, 11 being the most satisfied with CAM. Using t-test analysis, no differences existed between satisfaction with the use of CAM. AA mean satisfaction was 8.34 (SD = 2.25) and CA mean satisfaction was 8.32 (SD = 2.25). To compare the AA and CA rural older adults, bivariate correlations were calculated by pairs using Pearson's product moment correlations with  $r^2$  at .08 and .16 for AA and CA, respectively. No correlations existed between number of CAM used and satisfaction with CAM.

Overall 378 older adults were invited to answer the questionnaire for the research project. It is not certain if the 195 persons who did not complete the questionnaire (51%) who attended the support group meetings did or did not use CAM. Demographic data and information related to CAM use is not known on those who chose not to answer the questionnaire.

In summary, rural older adults who used CAM reported satisfaction with use. Differences in CAM use was identified by age and education. CA use more CAM per person than AA with significant findings in the use of glucosamine by CA.

## Discussion

Differences between CA and AA were found in age and education. AA using CAM were older than the CA. This may be due to the generation of older adults who had to rely more on folklore practices in their lives from the early 1900's, when health care access was not available to rural residents or minorities. Very few of these AA were educated past high school, while a larger number of CA were educated at the college level and higher. The AA may have had difficulty in comprehending the questions and may have been less willing to participate in research. Race may also have played a factor in the low response from AA due to mistrust of research activities the AA culture has experienced.

The top five uses of CAM in both AA and CA were prayer, vitamins, exercise, meditation, and herbs. The most common uses of CAM in previous studies identified were chiropractic medicine, herbal remedies, relaxation techniques, megavitamins and religious or spiritual healing [9]. Since Mississippi is considered the "Bible Belt" of the South, the commitment to spirituality may have contributed to the use of prayer as the highest CAM used in older adults. It should be noted that the differences found in the use of vitamins (.06) and chiropractic medicine (.08) were near significance at the .05 level by race, indicating AA do not use vitamins or chiropractic medicine as much as CA. This may be due to the lack of insurance that poverty stricken minority older adults face in rural areas like Mississippi. Chiropractic services are often covered by health insurance in this country with a higher likelihood for middle class citizens to be covered by such insurance. There was no difference in the satisfaction of the CAM used by CA or AA. Both groups were satisfied with the CAM being used.

All of the older adults who answered this questionnaire lived in southern Mississippi, considered to be 100% rural. Mississippi has a high poverty rate with 19.9% of the population living below poverty, compared to 12.4% nationwide [19]. Rural older adults may feel the need to use more CAM and folklore practices than conventional medications because of the perceived reliability of these interventions based on folklore or family traditions and the availability of these practices. Of all the CAM, exercise had the highest percentage of usage, excluding nutritional supplements. Being in a rural area, many of the older adults spent their lives doing physical labor, working on farms, and doing blue-collar jobs. This may predispose these older adults to include some form of exercise in their daily lives.

Of the 378 older adults who participated in the research and agreed to answer the questionnaire, 183 (49%) reported use of CAM. This number may be an underestimation of the population, as there may have been older adults who used CAM who did not want to participate in the study. However, the number correlates with previously reported results of 41% to 75% of older adults using some form of CAM [13]. The majority of the participants were female in a low SES bracket and with no more than a high school education. Many of the participants used a variety of CAM products with an average CAM use of 3.8 interventions per participant. One hundred and fifty five (85%) participants used prayer, with 151 (83%) using vitamins, and 117 (64%) using exercise as CAM interventions.

Fewer AA attended the community programs than CA. The African American population represents 36.3% of the Mississippi residents, a high percentage compared to the national average of 12.3% [19]. AA may avoid these meetings due to feelings of racial discrimination still present between AA and CA in the “deep South”. Community churches may be better sources of recruitment for AA.

Despite the fact that almost half of the group who attended the meetings used CAM, only a small percentage of money was being spent by the older adults for CAM. Forty five per cent of the participants reported spending less than \$100/year on CAM. This may be due to the limited income available to spend on CAM (51.1% of older adults in this study made less than \$19,999/year). Insurance often does not cover CAM so CAM may not be considered due to cost. There may be limited availability of CAM in rural areas indicating that rural residents may have to travel to receive CAM, adding an extra burden of expense.

### **Conclusions**

Health care providers should be aware of CAM use in older adults, specifically those who live in rural areas who may be familiar with folklore and other alternative interventions in their daily health care practices. Patients in poverty may not have the benefits of expensive CAM interventions, including those reimbursed by health care insurance as many of rural older adults are either uninsured or have limited reimbursement policies through state and government agencies. Health care providers must recognize that CAM may be used very differently among a variety of racial backgrounds. Recommendations for future research may include:

- use of herbs and specific concerns related to aging and metabolism including absorption, distribution, metabolism, and excretion that can affect the interactions of medications among AA and CA elders
- pharmacological studies specifically for older adults to determine potential interactive effects of CAM between AA and CA with standard treatment medications, and
- evaluation of the safety and efficacy of CAM practices in AA and CA older adults, specifically herbs and vitamins.

In summary, health care providers must be aware of different uses of CAM by race. Older adults, both AA and CA, may have specific concerns because of gerontological issues that may increase susceptibility to CAM interventions. The responsibility of the health care provider regarding the use of CAM, side effects, and benefits must be acknowledged. Differences in the use of CAM by race must also be considered when advising patients.

### **Competing Interests**

'Competing interests: none declared'

- Have you received reimbursements, fees, funding, or salary from an organization that may in any way gain or lose financially from the publication of this paper in the past five years? If so, please specify. NO
- Have you held any stocks or shares in an organization that may in any way gain or lose financially from the publication of this paper? If so, please specify. NO
- Do you have any other financial competing interests? If so, please specify. NO
- Are there any non-financial competing interests you would like to declare in relation to this paper? If so, please specify. NO

### **Authors' contributions**

Dr. Cuellar was the P.I. in this study. She was responsible for designing and coordinating the study including analyzing data, submitting it for publication, as well as presenting findings at international conference.

The other authors were responsible for collecting the data, assisting in the literature review as well as participating in the study design. Each assisted in the development of the manuscript.

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**Tables***Table 1**Demographics of older adults who reported use of CAM*

Demographic Variable	Intervals	Overall	AA n = 40	CA n = 143
*Age	50-59	7 (3.8%)	0	7 (5%)
	60-79	52 (28%)	19 (47.5%)	33 (23%)
	70-79	75 (40%)	19 (47.5%)	55 (38%)
	80 >	52 (28%)	2 (5%)	48 (34%)
Gender	Male	45 (24%)	9 (23%)	33 (23%)
	Female	139 (76%)	30 (77%)	109 (77%)
Marital Status	Married	78 (42%)	15 (37.5%)	61 (43%)
	Single	107 (58%)	25 (62.5%)	81 (57%)
Socioeconomic Status (SES)	\$0 - \$19,999	95 (51.1%)	28 (72%)	64 (49%)
	\$20 - \$39,999	64 (34.4%)	10 (25%)	54 (41%)
	\$40 - \$59,999	8 (4.4%)	0	8 (6%)
	\$60,000 and >	6 (3.2%)	1 (3%)	5 (4%)
*Education	< 8 <sup>th</sup> grade	16 (8.7%)	8 (21%)	7 (5%)
	9 – 12 grade	106 (57.6%)	25 (64%)	79 (55.5%)
	College	57 (30.6%)	5 (13%)	52 (36.5%)
	Graduate School	5 (2.7%)	1 (2%)	4 (3%)
Out of pocket expenses spent on CAM	Under \$100.00	84 (48.8%)	22 (55%)	60 (47%)
	\$101.00 - \$500.00	56 (32.6%)	7 (17.5%)	48 (37%)
	\$501.00 - \$1,000	17 (9.9%)	5 (12.5%)	12 (9%)

	\$1001.00 - \$1500	7 (4.1%)	3 (7.5%)	4 (3%)
	\$1501.00 - \$2000	5 (2.9%)	2 (5%)	3 (2.5%)
	\$2000 and more	3 (1.7%)	1 (2.5%)	2 (1.5%)

\*Significant difference by race at  $p = .05$

Table 2

*The Use of CAM by AA and CA Rural Older adults*

CAM Used	African Americans (n =40 )	Caucasian Americans (n = 143)
Acupuncture	0	1 (.7%)
Aroma Therapy	1 (2.5%)	3 (2.1%)
Art Therapy	1 (2.5%)	1 (.7%)
Biofeedback	2 (5%)	0
Chelation	0	1 (.7%)
Chiropractic Medicine	3 (7.5%)	27 (19%)
Chondroitin	0	13 (9.2%)
Exercise	23 (57.5%)	94 (66.2%)
Glucosamine*	0	28 (19.7%)
Herbs	10 (25%)	33 (23.2%)
Hypnosis	0	1 (.7%)
Journal Writing	2 (5%)	12 (8.5%)
Magnetic Therapy	2 (5%)	9 (6.3%)
Massage Therapy	4 (10%)	16 (11.3%)
Meditation	12 (30%)	32 (22.5%)
Melatonin	0	7 (4.9%)
Metal Therapy	0	2 (1.4%)
Music Therapy	6 (15%)	15 (10.6%)
Naturopathic Medicine	0	4 (2.8%)
Prayer	36 (90%)	119 (83.8%)

Qi	1 (2.5%)	1 (.7%)
Reiki	0	1 (.7%)
Taichi	0	2 (1.4%)
Therapeutic Touch	2 (5%)	1 (.7%)
Vitamins	29 (72.5)	122 (85.9%)
Visual Imagery	2 (5%)	4 (2.8%)
Yoga	1 (2.5%)	4 (2.8%)
Other	0	9 (6.3%)

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