# Pattern, Predictors and Satisfaction with Complementary and Alternative Medicine Use Among Elderly in a Rural and Remote Community in Southwestern Nigeria

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## ABSTRACT

**Background**: Before the advent of conventional medicine, traditional medicine was the mainstay of healthcare in Africa. Health coverage for the elderly is especially important as the percentage of the global population constituted by the elderly is at unprecedented levels and is projected to continue to rise. This group of people are often afflicted by a myriad of diseases and the concurrent use of orthodox and traditional medicine is not uncommon. The aim of the study is to determine predictors and pattern, predictors and satisfaction with Complementary and Alternative Medicine use among elderly citizens in the Pakoto community, Ogun State.

**Methods:** This was a cross-sectional study carried out among the elderly in Pakoto community in Ogun State. The study was conducted among 197 respondents selected using multi-stage sampling. An interviewer-administered questionnaire used to obtain data was analyzed using Epi Info software version 7.1. The Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ) was used to retrieve responses from the participants. Level of significance was set at P value less than 0.05 ($p<0.05$).

**Results:** The mean age of the respondents was 70 years. The most used modalities of CAM were herbal therapy (67%) and faith healing (33%). The factors associated with the use of CAM includewere: being 60-64 years old, being employed, having low income, being single, having a partner as a caregiver, having secondary level education and having a polygamous or other non-nuclear family type. More than half of the respondents (58.5%) had a positive attitude to CAM use while and (55.8%) were satisfied with CAM use.

**Conclusion:** The variations and use of complementary and alternative medicine among the elderly in the study area is relatively lower to reports from similar studies..

**Keywords:** Traditional, Complementary, Alternative, Medicine, Herbal, elderly

## INTRODUCTION

Traditional medicine is the sum total of the knowledge, skills and practices based on the beliefs theories and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health, as well as in the prevention, diagnosis, improvement or treatment of physical and mental illnesses.[1] Traditional medicine may be referred to as Complementary Therapy (CT) when used in conjunction with orthodox medicine, and Alternative Therapy (AT) when it replaces orthodox medicine.[2] Traditional healers are often the first points of contact for health care provision in many rural areas.[3]

The National Centre for Complementary and Integrative Health (NCCIH), a constituent institute of the National Institutes of Health (NIH) classifies CAM in five major categories: alternative medical systems (e.g. traditional oriental medicine, Ayurveda, Tibetan medicine, naturopathy, homeopathy, acupuncture, Native American healing), mind-body interventions (e.g. meditation, dance, art and music therapy, hypnosis, spiritual healing and prayer), manipulative and body-based methods (e.g. chiropractic, massages the Feldenkrais method, other “body work” systems and aspects of osteopathic medicine such as craniosacral work), energy therapies (e.g. Reiki, therapeutic touch and other methods of affecting the bioelectric field of the body), and biologic-based therapies (e.g. herbal medicine and dietary supplements, special diets and orthomolecular medicine).'4 Herbal medicines are especially common and as described by the National Institute of Health, comprise of products derived from plants that are used to preserve health, however, many of these medicines are still lacking scientific evidence of effectiveness and safety.5

Prayer (spirituality), and cognitive behavioural

therapy are examples of mind-body interventions, have already been integrated in conventional practice and many others are being used as adjunct therapies in the treatment of diseases. [6] Mindfulness meditation has been adapted for clinical interventions with Mindfulness Based Stress Reduction and Mindfulness Based Cognitive Therapy. [7] The practice of yoga is reputed to produce positive physiologic changes in heart rate, blood pressure, galvanic skin response, respiratory rate, fasting blood glucose, breath holding time, auditory and visual reaction times, and intraocular pressure. [8] Hypnosis is employed in the management of chronic and acute pain, psychological therapy for trauma management and other areas of health care. [9] Many concepts are based on theories that increasing age is associated with an increased prevalence of chronic medical conditions and a greater demand for medicines and medical services. [10] Notwithstanding the fact that there is a global initiative to integrate traditional medicine in healthcare systems, this presents a challenge to health care providers as the multiple and chronic physical problems often found in the elderly increase the probability of herb-drug interactions that may result in further complications and may even be fatal. Care by traditional doctors is perceived holistic as they attempt to restore equilibrium to the social and emotional aspects of patients' lives using community rules and relationships while treating patients' illnesses. [11]

Few studies have been done, though with inconsistent results, to determine the predictors and pattern of use of CAM among the elderly and assess their attitude towards CAM.5'[12] Available literature, however, shows that the attitude of the elderly towards CAM is influenced by advertisements, failure of orthodox medicine to cure their chronic conditions, perceived safety of CAM and the avoidance of risk associated with the use of orthodox medicine. [12]

A study done by Chukwuma B. Duru *et al*., showed that the concurrent utilization of orthodox and traditional medicine was seen to increase with age with the highest prevalence among respondents 65 years of age and older and at least 80% of this group had utilized traditional medicine in conjunction with orthodox medicine. [13] It has been observed that many adults and elderly use different health products or measures under the umbrella of CAM. [14,15] Dissatisfaction with conventional medicine has also been suggested as a reason for seeking CAM treatment, with patients citing such issues as poor doctor-patient communication and not enough time spent with the doctor. [16]

This study will provide health care providers with knowledge of the factors that influence the decision of elderly to turn to CAM, may enhance delivery of care by improving cultural sensitivity of health care providers and preventing potential treatment complications that may arise from concurrent utilization of orthodox and traditional medicine. Knowledge of the pattern of CAM utilization may also contribute to policymaking on the subject of integration of traditional medicine that has been proven effective and safe, such that elderly patients are treated more holistically, and the goal of universal coverage is achieved. The aim of the study is to determine the attitude to CAM use, pattern of use and factors associated with CAM use and satisfaction among elderly citizens in the Pakoto community.

## MATERIALS AND METHODSOLOGY

### Study Area

The study was conducted at Ifo in Ogun state in the south-western Nigeria. The total population of the elderly in Nigeria is about 3%. In 2016 the population was estimated to be 7.1 million. 17 Ifo Local Government Area, one of 20 LGAs in Ogun State. It consists of 3 Local Council Development Areas: Isheri, Ajuwon/Akute LCDA, Agbado/Oke-Aro LCDA and Coker/Ibogun LCDA. The LCDAs were created in the year 2016. Ifo LGA is further divided into 11 wards for ease of governance and administration. The wards are as follows: Ifo ward I, Ifo ward II, Ifo ward III, Agbado ward IV, Isheri Olofin Ward V, Akute Ajuwon Ward VI, Oke-Aro/Ibaragun Ward VII, Ososun Ward VIII, Sunren Ward IX, Coker Ward X and Ibogun Ward XI. Pakoto is a rural community in Coker Ward, Ifo Local government area, Ogun state. Its geographical coordinates are 6° 47' 0" North, 3° 12' 0" East. It was estimated that the elderly constitutes about 300 individuals of the total population of 10,000 in Pakoto Community. The healthcare services available to residents of Pakoto community are mainly provided by the Pakoto Primary Health Care Centre established by the Lagos University Teaching Hospital, traditional birth attendants and traditional healers.

### Study Design

The study was a descriptive cross-sectional analytical study. conducted among older residents aged 60 years and above in Pakoto community, Ogun state, Nigeria

### Inclusion criteria

Older residents aged 60 years and above in Pakoto community, Ogun state, Nigeria

### Exclusion Criteria

Residents aged 60 years and above in the selected community who were too ill to participate in the study or had an impaired memory. [18]

### Sample Size Determination

Cochran's formula was used to determine the

minimum sample size required for a generalizable study. [19]

$n = Z^2pq/d^2$

Where:

n = Minimum sample size.

Z = standard normal deviate at specified confidence interval of 95% (1.96)

p = expected prevalence rate for the population from which the sample is taken. q = 1-p.

d = margin of error acceptable

In this study, the minimum sample size, n, will be determined using p, (the prevalence of combined use of orthodox and traditional medicine in elderly members of households in Orlu, Imo State, Nigeria) as 80%. [13]

$n = (1.96)^2 \times (0.8) \times (0.2)/(0.05)^2$

n = 246

However, the sample frame consisting elderly in Pakoto was estiamted to be 300. Therefore, study sample size was 246/1+246/300

= 246/1.82 = 135

The sample size in this study is less than 10,000. Therefore, the formula for infinite population was used.

nf = n/ (1 +n/N)

Where, nf = the desired sample size, when the population is less than 10,000.

n = the desired sample when the population is more than 10,000.

N = the estimated population size elderly in study area (1000)

Therefore:

nf = 246/ (1 + 246/1000)

Sample size is 197 respondents.

## Sampling Technique

Multistage sampling technique was employed in the selection of study area.

Stage 1: Selection of Local Government Area

Purposive sampling was done to selective the Outskirt station for Lagos University Teaching Hospital located in Ifo LGA in Ogun State.

Stage 2: Selection of Participants

Consecutive recruitment of participants consisting of one older person in each household was done until the estimated sample size was reached

## Data Collection, Tools and Techniques

Data collection began on the 3rd of December 2019 and ended on the 13th of December 2019. Questionnaires were administered by the interviewers, and they were only administered after verbal and written informed consent had been obtained from respondents. The questionnaire consisted of five sections adapted from Holistic Complementary and Alternative Medicine QustetionnaireQuestionnaire (HCAMQ) with retest Reliability 0.86.[20]

Section A: Socio-demographic characteristics of respondents; assess the age, gender, religion, ethnic group, marital status, family setting, highest level of education, care provider, employment status and estimated monthly income of the respondent.

Section B: Pattern of CAM use i.e., specific therapies employed.

Section C: Hypothesized factors responsible for the use of Complementary and Alternative Medicine.

Section D: Attitude of respondents to CAM using HCAMQ.

Section E: Satisfaction of elderly in Pakoto community.

## Data Management

### Scoring and Grading

Attitude was assessed using the Holistic Complementary and Complementary and Alternative Health Questionnaire (HCAMQ), a 6-point Likert scale type questionnaire with two subscales: Holistic Health (HH) subscale and the Complementary and Alternative Medicine (CAM) subscale. The HH subscale consists of 5 questions and was scored as follows: strongly agree-1mark; agree-2marks; mildly agree-3marks; mildly disagree-4marks; disagree-5marks; strongly disagree-6marks.

For the CAM subscale which consists of 6 questions, the Likert scale score was used in reverse as follows: strongly agree-6marks; agree-5marks; mildly agree-4marks; mildly disagree-3marks; disagree-2marks; strongly disagree-1mark.

The total score was obtained by summing up the scores for the 11 questions. The lowest possible score was 11 and the highest possible score was 66. Thus, the range score for attitude was 11-66. An overall score ≤33 was graded as positive attitude to CAM (lower scores indicate a more positive attitude towards CAM and HH) and a score >33 was graded as negative attitude to CAM.

## Data Analysis

Collated data was analysed using Epi Info software Version 7.1 created by the Centre for Disease Control, Atlanta, Georgia. Data presentation was done using frequency distribution and tables. The pattern of CAM use, overall attitude, satisfaction and reasons for use of CAM were presented using frequencies and proportions. Age distribution was done using mean and standard deviation. Chi- squared test was used to determine the association between independent variables (attitude towards CAM use, socio-demographic characteristics) and dependent variables (herbal use, overall satisfaction and attitude towards CAM use). A p-value less than 0.05 was

interpreted as an indicator of a statistically significant association between variables.

## ETHICAL CONSIDERATION

Approval for this study was obtained from the Health Research and Ethics Committee (HREC) of Lagos University Teaching Hospital. The Health Research and Ethics Committee assigned number ADM/DCST/HREC/APP/564 was given. A letter of introduction was obtained from the Department of Community Health and Primary Care to the selected LGA for easy access to members of the community and information required for the purpose of the study. Informed consent was obtained from each participant after the complete nature and purpose of the study has been discussed. Respondents were assured of confidentiality and their right to refuse to continue study without facing consequences of any sort. Their names were not included, and every information gotten from this study was used only for the purpose of research.

## STRENGTHS OF THE STUDY

There is a dearth of information and research on use of Complementary and Alternative Medicine in Nigeria and especially among the elderly population and this study provides such information. Furthermore, an actual database of specific therapies employed as well as factors that influence the employment of such therapies are virtually non-existent.

## LIMITATIONS OF THE STUDY

The study relies on the strength of the information provided by the respondents which may be inaccurate because of gaps in memory, fear of judgment and other biases on the part of the respondents.

## RESULTS

Two-third (67%) of respondents used at least one type of complementary and alternative medicine modality (herbal medication). one-third (33%) represented the proportion of respondents who did not use herbal medication but may have employed other forms of complementary and alternative medicine.

Table 1 below depicts the pattern of complementary and alternative medicine use among the respondents. The most frequently employed forms of CAM were herbal medication (67.0%), other forms of CAM (45.2%), medication (34.0%) and faith healing (33.0%)

**Table 1: Pattern of Complementary and Alternative Medicine use**

| Variable* | Frequency (n = 197) | Percentage |
|---|---|---|
| Herbal medication | 132 | 67.0 |
| Dietary supplements | 17 | 8.6 |
| Traditional bone setting | 44 | 22.3 |
| Medication | 67 | 34.0 |
| Dance and music therapy | 11 | 5.6 |
| Hypnosis | 8 | 4.1 |
| Faith healing | 65 | 33.0 |
| Ayurvedic medicine | 6 | 3.0 |
| Naturopathy | 5 | 2.5 |
| Homeopathy | 6 | 3.0 |
| Acupuncture | 6 | 3.0 |
| Chiropractic | 2 | 1.0 |
| Massage | 5 | 2.5 |
| Chinese medication | 42 | 21.3 |
| Others | 89 | 45.2 |

*Multiple responses

Table 2 below shows that the most common reasons for the use of complementary and alternative medicine among the participants are general health improvement (82.7%), affordability (60.4%), ease of access (59.4%), reasons other than those listed (59.2) and recommendation by friends or family members (54.8%).

**Table 2: Reasons for use of complementary and alternative medicine**

| Variable (multiple response) | Frequency (n = 197) | Percentage |
|---|---|---|
| General health improvement | 163 | 82.7 |
| Dissatisfaction with orthodox medicine | 57 | 28.9 |
| Fear of side effect of conventional medicine | 61 | 31.0 |
| Recommendation by friends or family members | 108 | 54.8 |
| Affordability | 119 | 60.4 |
| Ease of assess | 117 | 59.4 |
| Desire for personalized attention | 64 | 32.5 |
| Adherence to customs | 55 | 27.9 |
| Others (reasons not included in the questionnaire) | 97 | 59.2 |

Table 3 below summarizes respondents' attitude to complementary and alternative medicine. Almost all (94.4%) agreed that positive thinking can help you fight off a minor illness. For overall attitude, over half (58.4%) of the respondents had a positive attitude to complementary and alternative medicine.

**Table 3: Attitude towards complementary and alternative medicine**

| Variable | SA | A | MA | MD | D | SD |
|---|---|---|---|---|---|---|
| Positive thinking can help you fight off a minor illness | 92(46.7) | 94(47.7) | 10(5.1) | 0(0.0) | 1(0.5) | 0(0.0) |
| Complementary medicine should be subject to more scientific testing before it can be accepted by conventional doctors | 51(25.9) | 91(46.2) | 48(24.4) | 2(1.0) | 4(2.0) | 1(0.5) |
| When people are stressed, it is important that they are careful about other aspects of their lifestyle | 79(40.1) | 73(37.1) | 39(19.8) | 4(2.0) | 2(1.0) | 0(0.0) |
| Complementary medicine can be dangerous in that it may prevent people from getting proper treatment | 64(32.5) | 95(48.2) | 24(12.2) | 7(3.6) | 5(2.5) | 2(1.0) |
| The symptoms of an illness can be made worse by depression | 64(32.5) | 87(44.2) | 44(22.3) | 1(0.5) | 1(0.5) | 0(0.0) |
| Complementary medicine should only be used as a last resort when conventional medicine has nothing to offer | 59(29.9) | 74(27.6) | 51(25.9) | 11(5.6) | 1(0.5) | 1(0.5) |

| | | | | | | |
|---|---|---|---|---|---|---|
| If a person experiences a series of stressful life events, they are likely to become ill | 53(26.9) | 105(53.3) | 24(12.2) | 8(4.1) | 7(3.5) | 0(0.0) |
| It is worthwhile trying Complementary medicine before going to the doctor. | 57(28.9) | 85(43.1) | 44(22.0) | 5(2.5) | 4(2.5) | 2(1.0) |
| Complementary medicine should only be used in minor ailments and not in treatment of more serious illness | 55(27.9) | 96(49.8) | 36(18.3) | 5(2.5) | 2(1.0) | 1(0.5) |
| It is important to find a balance between work and relaxation in order to stay healthy | 82(41.6) | 92(46.8) | 19(9.6) | 3(1.5) | 0(0.0) | 1(0.5) |
| Complementary medicine builds up the body's own defences, so leading to permanent cure | 82(41.6) | 87(44.2) | 23(11.7) | 4(2.0) | 1(0.5) | 0(0.0) |

Table 4 below addresses respondents' satisfaction with complementary and alternative medicine use. More than half (55.8%) are satisfied with the outcome of complementary and alternative medicine use, with 63.8% and 56.9% willing to recommend to family/friends and revisit usage respectively.

**Table 4: Satisfaction of respondents with complementary and alternative medicine**

| Variable | Frequency (n = 197) | Percentage |
|---|---|---|
| **Overall Satisfaction** | | |
| Yes | 110 | 55.8 |
| No | 87 | 44.2 |
| **Recommendation to family and friends** | | |
| Yes | 125 | 63.5 |
| No | 72 | 36.5 |
| **Revisit** | | |
| Yes | 112 | 56.9 |
| No | 85 | 43.1 |

Table 5 below revealed that there is a significant association between the age group and respondents' attitude to CAM use (p=0.005) with participants in the 60-64 age group most likely to have a positive attitude to CAM use. A statistically significant association exists between marital status and respondents' attitude to CAM use. Respondents who were single were most likely to have a positive attitude to CAM (p=0.006). A significant association between education and respondents' attitude to CAM use (p<0.001) can be seen and individuals educated up to secondary level were most likely to have a positive attitude to CAM use. Shows a significant association between respondents' employment status and their attitude to CAM (p=0.025) with employed respondents being more likely to have a positive attitude to CAM. The table also shows a significant association between income and attitude to CAM (p=0.008) and those who earned 40,000-100,000 naira were most likely to have a positive attitude to CAM. Shows a statistically significant association between the family characteristics of respondents and their attitude to CAM use. Respondents from non-nuclear family structures were more likely to have a positive attitude to CAM (p=0.0001). Respondents whose partners were their caregivers were most likely to have a positive attitude to CAM (P<0.001).

**Table 5: Socio-demographic characteristics and Attitude towards CAM**

| Sociodemographic Characteristics | Positive (n=115) | Negative (n=82) | $X^2$ | p-value |
|---|---|---|---|---|
| **Age group (Years)** | | | 16.763 | **0.005** |
| 60-64 | 59(72.0) | 23(28.0) | | |
| 65-69 | 16(59.3) | 11(40.7) | | |
| 70-74 | 14(51.9) | 13(48.1) | | |
| 75-79 | 5(25.0) | 15(75.0) | | |
| 80-84 | 10(52.6) | 9(47.4) | | |
| ≥85 | 11(50.0) | 11(50.0) | | |
| **Gender** | | | 0.002 | 0.967 |
| Male | 41(58.6) | 29(41.4) | | |
| Female | 74(58.3) | 53(41.7) | | |
| **Marital status** | | | 14.904 | **0.006** |
| Single | 19(79.2) | 5(20.8) | | |
| Married | 73(64.0) | 41(36.0) | | |
| Widowed/ Separated /Divorced | 23(39.0) | 36(61.0) | | |
| **Education** | | | 24.019 | **<0.001*** |
| Primary | 32(39.5) | 49(60.5) | | |
| Secondary | 46(80.7) | 11(19.3) | | |
| Vocation/None | 37(62.7) | 22(37.3) | | |
| **Employment status** | | | 10.291 | **0.001** |
| Unemployed/Retired | 52(48.2) | 56(51.8) | | |
| Employed | 63(70.8) | 26(29.2) | | |
| **Income** | | | 7.366 | **0.025*** |
| <40,000 | 58(65.9) | 30(34.1) | | |
| 40-100,000 | 55(55.0) | 45(45.0) | | |
| >100,000 | 2(22.2) | 77(77.8) | | |

***Significance**

Table 6 below explains the statistically significant associations between some sociodemographic characteristics of respondents and their use of herbal medication. There is a significant association between the age of respondents and their use of herbal medications (p<0.001) with respondents aged 60-64 years being most likely to use herbal medication. A significant association between respondents' marital status and their use of herbal medication (p<0.01) can be observed and individuals who were single were most likely to use herbal medication. A significant association can be seen between the level of education of respondents and their use of herbal medication (p<0.001) with individuals educated at secondary level being most likely to use herbal medication. It also depicts a statistically significant association between the economic characteristics of respondents and their use of herbal medication. A statistically significant relationship between respondents' employment status and their use of herbal medication (p=0.000003) can be observed with employed individuals more likely to use herbal medication. Also, a statistically significant association exists between respondents' income and their use of herbal medication (p<0.001) is seen and individuals with low income were most likely to use herbal medication. It also shows a statistically significant association between the family

characteristics of respondents and their use of herbal medication. A statistically significant relationship between respondents' family type and their use of herbal medication (p=0.00000002) can be observed with individuals from non-nuclear family types being more likely to use herbal medication. Also, a statistically significant association exists between respondents' type of caregiver and their use of herbal medication (p<0.001) is seen and individuals whose partners were their caregivers were most likely to use herbal medication.

**Table 6: Association between socio-demographic characteristics and herbal use**

| Socio-demographic characteristics | Yes | No | $X^2$ | p-value |
|---|---|---|---|---|
| **Age group (Years)** | | | 36.044 | **<0.001*** |
| 60-64 | 70 (85.4) | 12 (14.6) | | |
| 65-69 | 21 (77.8) | 6 (22.2) | | |
| 70-74 | 17 (63.0) | 10 (37.0) | | |
| 75-79 | 7 (35.0) | 13 (65.0) | | |
| 80-84 | 9 (47.4) | 10 (52.6) | | |
| ≥85 | 8 (36.4) | 14 (63.4) | | |
| **Gender** | | | 0.082 | 0.874* |
| Male | 46 (65.7) | 24 (34.3) | | |
| Female | 86 (67.7) | 41 (32.3) | | |
| **Marital Status** | | | 21.545 | **<0.001*** |
| Single | 21 (87.5) | 3 (12.5) | | |
| Married | 85 (74.6) | 29 (25.4) | | |
| Widowed/ Divorced/ Separated | 26 (44.1) | 33 (55.9) | | |
| **Family Type** | | | 31.384 | **<0.001*** |
| Nuclear | 94 (83.2) | 19 (16.8) | | |
| Polygamous/Others | 38 (45.2) | 46 (54.8) | | |
| **Type of Caregiver** | | | | |
| Self | 99 (83.9) | 19 (16.1) | 73.407 | **<0.001*** |
| Partner | 17 (94.4) | 1 (5.6) | | |
| Family Member | 10 (19.6) | 41 (80.4) | | |
| Paid caregiver | 6 (60.0) | 4 (4.0) | | |
| Traditional | 12 (80.0) | 3 (20.0) | | |

Table 7 below highlights the association between respondents' satisfaction and attitude toward CAM use. More than half (57.5%) with a positive attitude had good overall satisfaction with the use of CAM however, this finding was not statistically significant (p = 0.819).

**Table 7: Association between attitude towards CAM and Overall satisfaction**

| | Yes | No | $X^2$ | p-value |
|---|---|---|---|---|
| **Attitude towards CAM use** | | | | |
| Positive | 65 (56.5) | 50 (43.5) | 0.0524 | 0.819 |
| Negative | 45 (55.8) | 37 (45.1) | | |

Table 8 below explains the statistically significant association between respondents' attitude to CAM and their use of herbal medication (p<0.001). Respondents who had a positive attitude to CAM were more likely to use herbal medication in caring for their health and well-being.

**Table 8: Association between attitude towards CAM**

| | Yes | No | $X^2$ | p-value |
|---|---|---|---|---|
| **Attitude towards CAM use** | | | | |
| Positive | 102 (88.7) | 13 (11.3) | 58.795 | **<0.001*** |
| Negative | 30 (36.6) | 52(63.4) | | |

## DISCUSSION

This community-based, cross-sectional study among elderly citizens in the Pakoto community, Ogun state was designed to determine predictors, pattern of complementary and alternative medicine use and attitude to its use. The present study adds to the growing body of research examining use of complementary and alternative forms of healthcare in Nigeria. Although the majority of these studies have typically used more heterogeneous demographic samples, the present study examined patterns and predictors of complementary and alternative medicine utilization within a targeted population of elderly who have been neglected.

The reported mean age of 70.4 years, as well as the female preponderance and other socio-demographic characteristics, are mostly in keeping with reports from previous studies on the elderly population epidemiology in Nigeria and other countries. Diverse complementary and alternative medicine patterns were used by respondents from this study, however herbal medication is the most common. Similar finding was observed in a cross-sectional study among HIV patients above 60 years. [21] This may be a major concern since many herbs are known for their toxic effects. [22] Aloe vera, a commonly used herb for medication among the elderly in Nigeria has been shown to have the possibility of drug interactions, including with antiretroviral drugs and pain relievers. [23] Reports of lower blood pressure and slow heart rate because of the alkaloids in the plant have also been observed with Moringa leaves, another common source of medicinal herbs. [24] There has been an observed positive relationship between prescription and over-the-counter medication use and herbals, which suggests complementary behaviors. [25,26] However, herbal users were also more likely to delay or avoid care due to lack of monetary resources, which suggests a substitutive pattern. [27]

Religion and spirituality are predominant in western Nigeria culture and have been influential in guiding healthcare decisions and behaviours, with one study documenting prayer as the most prevalent form of self-help therapy. [28] Generally, ill patients are more likely to turn to religion/spirituality when consistent with their beliefs, if they were inclined to more natural approaches to health, if they experienced medication-related problems, as well as if they had childhood

influences. [29] This current study showed that 33% of the respondents engage in faith healing pattern of complementary and alternative medicine. A similar study reported that those who used religion/spirituality (e.g., prayer) for health reasons were more likely to see a physician for their health problems, implying complementary behaviours; and they also tended to use religion/spirituality to treat serious conditions such as cancer, heart disease, osteoporosis, and depression. [30]

All 4 of the alternative-medical systems modalities (acupuncture, Ayurveda, homeopathic, and naturopathy) were used for treatment by only 3% of them. Not surprisingly, both manipulative and body-based therapies (chiropractic and massage) were used by 1.0% and 2.5% respectively. These findings are lower compared to reports from other studies on users of alternative-medical systems [31] and chiropractic care and massage. [32] A reason for the low use of these deep tissue treatment options among these elderly respondents could be because of their skin is thinner and can tear more easily. [33] In this study, traditional bone setting, dietary supplements, dance and music therapy were other modalities of complementary and alternative medicine used by the respondents. The paucity of studies on these alternative modalities makes it difficult to put these findings into context. Perhaps, the use of dance and music therapy are known for reducing stress, a known cause of illness. [34] The most common reasons identified for the use of CAM among those hypothesised include perceived general health improvement, reasons other than those hypothesised, affordability of CAM, ease of access and recommendation by family members and friends. The desire of patients to use complementary and alternative medicine was attributed to their willingness to try anything that can treat the disease directly, improve sleep, relieve the symptoms/side effects associated with the use of conventional medicine, and improve psychological well-being. [21] The use of complementary and alternative medicine has also been attributed to the increasing demand and expectations for more holistic and comprehensive care. [35] As previously reported by similar studies, people were discouraged by the inadequacy, high cost, toxic, mechanistic and lack of human touch of conventional medicine and were encouraged by the synchrony with patients beliefs, the ability to take greater control of one's life and other complementary and alternative medicine.5,[13,32] The significantly identified factors associated with the use of complementary and alternative medicine (herbal medication) include the following: being 60-64 years old, being employed low income, being single, having a partner as a caregiver, having secondary level education and having a polygamous or other non-nuclear family type.

In a similar study among African-Americans, higher income was reported as a significant predictor of complementary and alternative medicine among their respondents. [25] The reason for this is that higher income levels are associated with higher education levels, both of which lead to increased access to care. Since several alternative therapies are not covered by insurance, individuals may need more disposable income to cover expenditures for these services. It is otherwise in Nigeria as the cost attached to conventional medical care is higher and people with lower income will rather settle for a more affordable alternative medicine in the use of herbal extracts.

In this study, participants aged 60-64 years were more likely to employ forms of complementary and alternative medicine in caring for their health. This finding is inconsistent with previous studies that have found older participants more likely to use CAM treatments, and with a national survey finding the elderly being the age group amongst which CAM use is most common. [36] This makes intuitive sense, as older participants are more likely to have health problems for which they have sought medical care. Additionally, older participants may be more likely to be suffering from chronic ailments, such as back pain, that are difficult to treat with conventional medicine. [37]

Over half of the respondents in this study had a positive attitude to complementary and alternative medicine use. Similar to previous studies, this study found that women have a more positive attitude to CAM use than men although this finding was not significant. [38] Single status, average income and polygamous/non-nuclear family types were significantly associated with a positive attitude to CAM use. Given that the satisfaction with complementary and alternative medicine is a potential reason to this treatment modality, it can follow that women are more likely to engage in the use of CAM than men. [39] There are chances that those who use complementary and alternative medicine for treatment may have poorer health status as they were more likely to have had physician visits. [40] However, the temporal order of this relationship is unclear. This could be due to failed treatment from mainstream medicine; or to enhance or complement mainstream medicine. The study among African Americans reported a positive relationship between exercise behaviour and CAM suggests that although African-Americans who use CAM for treatment may be sicker, they are also more likely to engage in health

conscience behaviours such as exercise. [25] This "health conscious" attitude was also reflected in another similar study. [27]

It is important that health care professionals should routinely ask about CAM use, especially among the elderly. Low-income earners, widows, as well as those from polygamous homes are more likely to use complementary and alternative medicine for treatment. The elderly that suffers from anxiety and depression will most likely use faith healing (prayer) and herbs to treat their condition. [41] Since prayer and spirituality are commonly used forms of treatment, health care professionals should engage patients to understand what role they play in their health care management. Establishing a partnership built on understanding of and respect for their beliefs may lead to more information sharing between patients and health care providers. With knowledge of complementary and alternative medicine use, providers are better able to monitor conditions for both positive and negative outcomes, as well as share clinical evidence regarding its use.

## CONCLUSION

The variations and use of complementary and alternative medicine among the elderly in the study area is lower when compared to reports from similar studies. The most used modalities of CAM were herbal therapy and spiritual healing. The factors found to be significantly associated with CAM use were: being 60-64 years old, being employed, low income, being single, having a partner as a caregiver, having secondary level education and having a polygamous or other non-nuclear family type.

More than half of the respondents had a positive attitude to CAM use and overall satisfaction with CAM use. Individuals who had a positive attitude to CAM were likely to use herbal medication, a CAM modality.

## Implications for policy and Practice

1. Health education among the elderly should be provided to increase their awareness of possible risks to use of herbal medication.
2. Majority of the elderly used complementary and alternative forms of medicine. Providing easily accessible and affordable healthcare centres, even in rural communities, will ensure optimum health care is provided.
3. The paucity of data on complementary and alternative medicine use among elderly in Nigeria limits knowledge of the magnitude of the problem. Further studies should be carried out to address this and investigate possible benefits of these easily accessible modalities to the elderly.
4. Due to the high prevalence of herbal medicine use, health care workers should always ask about the use of complementary and alternative medicine to prevent drug-drug interactions that may be harmful to the body.
5. Research into the efficacy of various complementary and alternative medicine modalities should be carried out and then the efficacious methods may be incorporated into the management of patients. This may improve the trust the elderly have for conventional care providers and thus, improve their compliance, honesty and overall well-being.

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