Perception, prevalence, and pattern of complementary and alternative medicine use among adults living with sickle cell disease in Lagos, Nigeria.

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ABSTRACT

Background: Nigeria has the largest population of people with Sickle Cell Disease (SCD). About 2.3% of the population suffer from the disease while about 25% are healthy carriers of the sickle cell gene. Painful crises are usually the common cause of frequent hospitalization among people living with SCD, hence, majority of these patients are now turning to the use of Complementary and Alternative Medicines (CAM).

Objectives: This study determined the perception, prevalence and pattern of CAM use among adults living with SCD in Lagos, Nigeria.

Methods: A cross-sectional survey was conducted among 301 SCD. Adults in Lagos State, from April to November 2019. Respondents were interviewed using a semi-structured pretested questionnaire. Descriptive, bivariate and multivariate analyses were conducted using SPSS Version 22. Level of significance was set at $p<0.05$%.

Results: Majority of respondents were between 25-34 years with a mean age of 30 ± 7.8 years. Three-fifth 181(60.1%) of respondents had good knowledge of CAM, while 177 (58.8%) had a positive perception towards CAM use. All respondents 301(100%) confirmed the use of CAM. The commonest CAM used was relaxation 238 (24.4%). Knowledge of CAM showed statistically significant associations with marital status, level of education and income ($p<0.05$). Respondents who had secondary level of education and above were less likely to use CAM compared to those who had lower education (OR= -1.011; 95% CI = 0.159-0.831)

Conclusion: CAM use is very common among adults with SCD. There is need for evidence-based research to evaluate the efficiency, effectiveness and safety of CAM.

Key words: Complementary and alternative medicine (CAM), Sickle cell disease (SCD), prevalence, perception, pattern, Lagos, Nigeria.

Perception, prévalence et modèle d'utilisation de la médecine complémentaire et alternative chez les adultes drépanocytaires à Lagos, Nigéria

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RÉSUMÉ

Contexte : Le Nigeria compte la plus grande population de drépanocytaires. Environ 2,3 % de la population souffre de la maladie tandis qu'environ 25 % sont des porteurs sains du gène de la drépanocytose. Les crises douloureuses sont généralement la cause commune d'hospitalisations fréquentes chez les drépanocytaires. Ainsi, la majorité de ces patients se tournent maintenant vers l'utilisation des médecines complémentaires et alternatives.

Objectifs : Cette étude a déterminé la connaissance, la perception, la prévalence et le mode d'utilisation des MCA chez les adultes drépanocytaires à Lagos, au Nigeria.

Méthodes : Une enquête transversale a été menée auprès de 301 adultes atteints de drépanocytose dans l'État de Lagos, d'avril à novembre 2019. Les répondants ont été interrogés à l'aide d'un questionnaire semi-structuré prétesté. Des analyses descriptives, bivariées et multivariées ont été réalisées à l'aide de SPSS version 22. Le niveau de signification a été fixé à p≤5 %.

Résultats : La majorité des répondants avaient entre 25 et 34 ans avec un âge moyen de 30 ± 7,8 ans. Trois répondants sur cinq, soit 181 (60,1%) avaient une bonne connaissance des MCA, tandis que 177 (58,8%) avaient une perception positive de l'utilisation des MCA. Tous les 301 répondants (100%) ont confirmé l'utilisation des MCA. La MCA la plus utilisée était la relaxation, soit 238 (24,4%). La connaissance des MCA a montré des associations statistiquement significatives avec l'état civil, le niveau d'études et le revenu (p<0,05). Les personnes interrogées ayant un niveau d'éducation secondaire ou supérieur étaient moins susceptibles d'utiliser les MCA que celles ayant un niveau d'éducation inférieur (OR= -1.011 ; 95% CI = 0.159-0.831).

Conclusion : L'utilisation des MCA est très fréquente chez les adultes atteints de la drépanocytose. Il est nécessaire de mener des recherches fondées sur des données probantes pour évaluer l'efficience, l'efficacité et la sûreté des MCA.

Mots-clés : Médecine complémentaire et alternative (CAM), drépanocytose (SCD), prévalence, perception, modèle, Lagos Nigeria.

INTRODUCTION

Sickle cell disease (SCD) is a life-long blood disorder in which the red blood cells assume a deformed or abnormal, rigid, sickle or crescent shape referred to as sickling. The sickling arises due to mutation in the haemoglobin gene, and causes a decrease in the red cells' flexibility which subsequently results in various complications, including vaso-occlusive crises usually accompanied by pains and other symptoms and signs.[1-2] Sickle cell disease affects all races and is a major contributor to high childhood mortality rate,[3] and it has been pronounced a global health problem.[4] Nigeria has the largest population of people with SCD, about 150,000 births annually, 2.3% of the population suffer from the disease and about 25% are healthy carriers of the gene.[3] SCD has impact on all aspects of the affected person's life with recurrent severe pain, frequent hospitalization, high cost of treatment and dependence on families and relatives during each episodes.[5-6] These health challenges faced by affected people, sometimes necessitates the use of complementary and alternative treatments (CAM).[7-8]

Complementary and alternative medicine (CAM) refers to any practice which aims at achieving the healing effects of medicine, but reside outside medical sciences and lacks evidence based scientific origin.[9-10] The National Centre for Complementary and Alternative Medicine (NCCAM) currently referred to as National Centre for Complementary and Integrative Health (NCCIH), U.S. National Institutes of Health (NIH) defined CAM as "a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine".[11] NCCIH classified CAM into five main classes; 1. Alternative medical systems (e.g. traditional medicine, acupuncture, Ayurveda, homeopathy); 2. Mind-body interventions (meditation, hypnosis, dance, spiritual healing, and prayer), 3. Biologically-based therapies (herbal medicine, dietary supplements and special diets), 4. Manipulative and body-based methods (chiropractic, massage, other "body work" systems), and 5. Energy therapies (therapeutic touch, and other methods of affecting the "bioelectric field" of the body).[12] The healing properties of CAM occur largely outside the main frame of the conventional medicine and the prevalence of its use is increasing globally, most especially in developing countries.[12-13] It has been documented that two-thirds of the world's population seek health care from sources other than conventional medicine.[12]

Herbal medicines have been documented as the first line of treatment for 60% of children with high fever.[14] Globally, CAM use have been found to be prevalent among people with chronic illnesses which are not resolved with conventional orthodox interventions. Its use accounted for 36% in patients with asthma, 48.9% in cancer patients and 65.5% in hypertensive patients.[15-17] In Nigeria, CAM use have been documented in hypertension, sickle cell disease, diabetes mellitus and cancer.[18-19] The prevalence of its use varies across the countries based on different environmental conditions.[20] Globally, the prevalence ranges between 30-75% but 70-80% in developing countries.[21] Studies have found prevalence range of 20-80% of herbal remedy use in Jamaica, Trinidad, and Nigeria.[21-23]

An important hallmark of SCD is intermittent, unpredictable pain episodes of varying degrees,[24] which poses challenges for patients, families, and even health-care professionals with the consequences of discomfort, low performance in work, school, play, and social relationships.[25] Painful crises are usually the common cause of frequent hospitalization among people living with SCD, hence, majority of these patients are now turning to CAM use in the management.[26-27] In Nigeria, herbal medicines were the most prevalent CAM use among patients due to easier access to traditional practitioners.[28] A high prevalence (88.5%)13 of CAM use has been reported in patients with SCD in Nigeria and among African-American adults residing in the USA (92%).[29]

Sickle cell disease with its chronic nature is associated with devastating clinical and psychosocial consequences thus leading the affected persons to seek alternative cure apart from orthodox medicine. It has been documented in recent time that, many SCD patients are now turning to CAM use to help manage the painful crises and other complications due to SCD.[23] Hence, this study was conducted to determine the knowledge, perception, prevalence and pattern of CAM use among adults living with SCD in Lagos, Nigeria.

METHODS

Study design and location

Lagos State is located on the South western part of Nigeria within latitude 602'N to 604'N and longitude 2045'E to 4020'E. The total land mass of the state stretches over 3.345 km with an estimated population of twenty-one million. Lagos State has 20 local government areas. This study was conducted among registered adult members attending sickle cell organizations in Lagos. A

cross-sectional study was carried out between April and November 2019 in eight sickle cell organizations from the list of eleven functional sickle cell clubs located in different communities, each with a total average of 50 adult members.

Sample size determination

Sample size was calculated using formula for single population proportion (n=z2pq/d2) where n was the estimated minimum sample size; z-level of significance at 95% confidence level (1.96); p-proportion of those who use CAM from a previous study (81.78%),30 q= (1-p), d= level of precision (0.05%). The calculated minimum sample size was 229, which was adjusted to 300 to make up for non-response and incomplete responses. Registered respondents who were 18 years and above from each of the organizations were recruited into the study following consent approval. Those who were ill, or failed to give informed consent were excluded.

Data Collection

A semi-structured pretested interviewer administered questionnaire was used to obtain data from respondents. The questionnaire comprised of six sections capturing socio-demographics; knowledge of CAM; use of CAM, reasons and sources, disclosure of use, and perception towards use. The questionnaire was designed following review of literatures and modification of validated questionnaires on International Questionnaire to Measure use of Complementary and Alternative Medicine (I-CAM-Q) and Holistic Complementary and Alternative Health Questionnaire (HCAMQ).[31-35]

Statistical Analysis

Data was analyzed with Statistical Package for Social Sciences (SPSS) version 22 statistical software. Eight questions were used to assess the knowledge of CAM, each right answer scored one and wrong or don't know answer zero. The sum points were calculated for each respondent. Scores of 0 to 4 points was regarded as low knowledge while 5 to 8 points as high level of knowledge. The questions on perception towards CAM consisted of 13 questions on a 5- point Likert's scale (1- Strongly Agree, 2- Agree, 3- Neutral, 4- Disagree, 5- strongly disagree) adapted from HCAMQ. The sum and mean score were calculated out of a total of 65 for each respondent. A lower score indicates a more positive attitude towards CAM and vice versa. This is based on the validated scoring of HCAMQ. Scores in the range of 0-45 were defined as positive attitude and higher likelihood to use CAM, whereas scores between 46 and 65 were defined as negative attitude and lower likelihood to use CAM. Categorical variables were presented as percentages or proportions while continuous variables were presented as mean ± standard deviation (SD). Chi square was used to determine the association between categorical variables and binary logistic regression for the predictor variable. Level of significance was set at $p < 5\%$.

Ethical consideration

Ethical approval was obtained from the Human Research and Ethics Committee (HREC) of the Lagos University Teaching Hospital. ADM/DCST/HREC/APP/3058. Written informed consent was obtained from each respondent with assurance of confidentiality of information, right to withdraw from the study at any point in time and voluntariness of participation.

RESULTS

Socio-demographic characteristics of respondents

Table 1 shows that a total of 301 respondents were included in the study. Most (143; 47.5%) were between 25-34 years, with a mean ±SD age of 30±7.8. Majority (229; 66.1%) were females, and mostly single (217; 72.1%); (185; 61.5%) had university degree. Unemployed and senior civil servants made up about 93 (30.9%) of the respondents. A higher proportion (101; 33.6%) of respondents earned less than N20,000.00 (USD 56) per month. Majority (271; 90.0%) were of HbSS phenotype and most (181; 60.1%) attend teaching hospital for treatment.

Table 1: Socio-demographic Characteristics of respondents

Variable	Frequency (N=301)	Percentage (%)
Age group (in years)		
18-24	76	25.3
25-34	143	47.5
35-44	59	19.6
45-54	23	7.6
Mean age ± SD = 30 ± 7.8		
Gender		
Male	72	23.9
Female	229	76.1
Marital status		
Single	217	72.1
Married/cohabiting	80	26.6
Divorced/separated	4	1.3
Level of education		
Graduate/Postgraduate	200	66.4
Undergraduate	69	22.9
Secondary	27	9.0
Primary	5	1.7
Occupation		
Senior public servant	93	30.9
Intermediate	67	22.3
Junior cadre	29	9.6
Petty trader/artisan	19	6.3
Unemployed	93	30.9
Ethnic group		
Yoruba	200	66.4
Igbo	69	23.0
Hausa	6	2.0
Others	26	8.6
Religion		
Christianity	241	80.1
Islam	60	19.9
Income		
<20,000	101	33.6
20,000-59,999	91	30.2
60,000-99,999	44	14.6
100,000-199,999	59	19.6
200 000 and above	6	2.0
Genotype		
HbSS	271	90.0
HbSC	30	10.0
Health facility attended		
Teaching Hospital	181	60.1
General Hospital	44	14.6
Private Hospital	52	17.3
Primary Health Center	24	8.0

Table 2 shows that majority (277; 92.0%) of the respondents appropriately indicated that CAM is any treatment that is used alongside or instead of standard medical treatments. However, a large proportion (250; 83.1%) incorrectly considered CAM to be an integral part of medicine. Two hundred and fifty-one (83.4%) knew that massage was a type of CAM that may be used in relieve of pain, while 239 (79.4%) indicated that acupuncture was used in relief of pain and bone setting. Two hundred and fifty-four (84.4%) respondents correctly said that CAM included natural plant formulas. A high proportion of respondents (243; 80.7%) did not know about the herbal medicine called 'Orin-ata' as a natural product without side effect, and (220; 73.1%) did not know that spiritual prayer, holy water and meditation are CAM treatments. Overall, 181 (60.1%) of respondents had good knowledge of CAM and its use.

Table 2: Knowledge of respondents on Complementary and Alternative medicine

Knowledge variables	Frequency (N=301)	
	Yes (%)	**No (%)**
Complementary and alternative medicine (CAM) is any treatment that is used alongside or instead of standard medical treatments	277(92.0)	24 (8.0)
CAM is an integral part of medicine	250 (83.1)	51 (16.9)
Massage is a type of CAM that may be used in the relief of pain	251 (83.4)	50(16.6)
CAM includes natural plant formulas in both tablet, capsule and liquid forms	254 (84.4)	47 (15.6)
Bone setting, Jobelyn and special diets are CAM treatments	239 (79.4)	62 (20.6)
Omega 3 is a CAM treatment used for wellness support in sickle cell disorder	150 (49.8)	151 (50.2)
Herbal medicines like ‘Orin-ata’ are natural products with no side effects	58 (19.3)	243 (80.7)
Spiritual prayer, holy water and meditation are NOT CAM treatments	220 (73 1)	81 (26.9)

In table 3, all the respondents (301; 100.0%) had used CAM previously. Relaxation was the most prevalent (238; 24.4%) type utilized followed by herbs/herbal medicine (153; 15.7%), and prayer (152; 15.6%). A large proportion (127; 42.2%) and (122; 40.5%) used it only when necessary or daily, respectively. Majority, (188; 62.5%) used it concurrently with their prescribed routine medications. Jobelyn was the most prescribed CAM (98; 38.3%) by respondents' doctor followed by Cellgevity (70; 27.3%). Average amount spent on CAM per month was about N10, 000.00 (USD 30) with mean ± SD of N9,360 ± N6,567 and a range of N500.00 to N30,000.00. (USD 15-90).

Table 3- Types of CAM used and pattern of use by respondents

Variables	Frequency (n=301)	Percentage (%)
Ever used CAM		
Yes	301	100.0
Types of CAM used*		
Meditation	68	7.0
Relaxation	238	24.4
Spiritual healing	7	0.7
Praying for yourself	152	15.6
Herbs/herbal medicine	153	15.7
Dietary supplements	129	13.3
Special diet	37	3.8
Mega vitamins/minerals	111	11.4
Other supplements	72	7.4
Homeopathy	7	0.7
Time of use of CAM[a]		
Daily	122	40.5
Weekly	42	13.9
Monthly	8	2.7
Only when necessary	127	42.2
Others	2	0.7
Use of CAM[a] with prescribed medicine		
Yes	188	62.5
No	113	37.5
Type of CAM prescribed by doctor * (n=256)		
Jobelyn	98	38.3
Ciklavit	68	26.6
Cellgevity	70	27.3
Others	20	7.8
Average amount spent on CAM per month Mean ±SD	N9,360 ± N6,567	Range=N500.00-30,000.00

*Multiple responses allowed

Table 4 shows the major reasons for CAM use among the respondents. Most (176; 58.5%) of the respondents reported decreased frequency of crises/hospitalization. Majority (271; 90.0%) reported no experience of side effects with the use. The major side effect reported by the few (30; 10.0%) was diarrhea. Relatives (159; 52.8%) were the major people involved in recommendation of CAM products while about one-third (94; 31.2%) were recommended by doctors. Higher proportion (200; 66.4%) purchased CAM from pharmacies and almost all (278; 92.4%) were willing to recommend CAM to others. About half (160; 53.2%) of the respondents had ever discussed CAM use with their doctors. The major reasons for disclosure were; doctor ought to know everything about their patients' health (102; 63.8%). Of the 141 (46.8%) respondents who did not disclose CAM use, 66 (46.8%) gave reasons of "no need for it as they considered CAM to be safe". Two hundred and seventy (89.76%) respondents said they discussed CAM use with health professionals because they provided more helpful information. Nurses, however, were identified (104; 34.6%) as the health professional respondents were most comfortable with in discussing such use.

Table 4- Sources of CAM, reasons for use, disclosure and side effects of CAM among respondents

Variable	Frequency (n=301)	Percentage (100%)
Reason for CAM use		
It decreases frequency of crises/hospitalization	176	58.5
It is affordable	18	6.0
It gives relief	36	12.0
I was told it is good for my condition	71	23.5
Ever experience side effect with use of CAM		
Yes	30	10.0
No	271	90.0
Type of side effects (n=30)		
Headache	4	13.3
Diarrhoea	17	56.7
Nausea	3	10.0
Others	30	20.0
Recommendation of CAM use (n=301)		
Friends	45	15.0
Relatives	159	52.8
Doctor	94	31.2
Media	3	1.0
Place of purchase of CAM (n=301)		
Pharmacy	200	66.4
Chemist	52	17.3
Herbalist	39	13.0
Others	10	3.3
Recommendation of CAM to others (n=301)		
Yes	278	92.4
No	23	7.6
Ever discuss CAM use with doctor (n=301)		
Yes	160	53.2
No	141	46.8
Reason for disclosure (n=160)		
I will be provided with more information	38	23.8
He ought to know everything about my health	102	63.7
I need to get his approval	20	12.5
Reason for non-disclosure (n=141)		
I have never thought of it	53	37.6
There is no need since its safe	66	46.8
I will be discouraged from using it	10	7.1
He doesn’t have enough knowledge about it	12	8.5

Health professional most comfortable discussing CAM with (n=301)		
Nurse	104	34.6
Pharmacist	77	25.6
Health educators	61	20.3
Others	59	19.5
Benefit of discussing CAM with health professional (n=301)		
It will provide more helpful information	270	89.7
Limit occurrence of adverse effect	14	4.7
Treatment will be more cost effective	13	4.3
Others	4	1.3

Majority (250; 83.1%) of the respondents agreed that CAM should be subjected to more scientific testing before it can be accepted by conventional doctors. More than half (158; 52.5%) agreed that CAM can be dangerous in that it may prevent people from getting proper treatment. Also, 151 (50.2%) of the respondents disagree with the idea of trying CAM before visiting the doctor. A large proportion (232; 77.1%) of the respondents agreed that clinical care should be integrated into the best conventional and CAM practice. Almost all respondents (285; 94.7%) agreed that knowledge about CAM is important to them. Majority (217; 72.1%) agreed that CAM products are effective; 138 (46%) agreed that CAM products have less side effect than conventional medicine, while 264 (88%) agreed that continuous education on CAM products should be mandatory for health professionals. Overall, a large proportion (177; 58.8%) of the respondents had a positive perception towards CAM use (Table 5; Figure 1).

Table 5- Perception of respondents about CAM use

Variable	SA (Strongly agree)	A (Agree)	N (Neutral)	D (Disagree)	SD (Strongly disagree)
CAM should be subjected to more scientific testing before it can be accepted by conventional doctors	105(34.9)	145(48.2)	15(5.0)	2(0.7)	34(11.3)
CAM can be dangerous in that it may prevent people getting proper treatment	26(8.6)	132(43.9)	69(22.9)	48(15.9)	26(8.6)
CAM should only be used as last resort when conventional medicine has nothing to offer	15(5.0)	52(17.3)	64(21.3)	127(42.2)	43(14.3)
It is worthwhile trying CAM before getting to doctor	23(7.6)	88(29.2)	39(13.0)	86(28.6)	65(21.6
CAM should only be used for minor ailment and not in treatment of more serious ones	31(10.3)	89(29.6)	74(34.6)	77(25.6)	30(10.0)
CAM builds up body own defense leading to permanent cure	4(1.3)	33(11.0)	82(27.2)	136(45.2)	46(15.3)
CAM approach hold promise for treatment of symptoms, condition and disease	85(28.2)	84(27.9)	80(26.6)	46(15.3)	6(2.0)
Clinical care should be integrated into the best conventional and CAM practice	68(22.6)	164(54.5)	69(22.9)	0(0.0)	0(0.0)
Health professionals should be able to advise their patients about commonly use CAM methods	104(34.6)	185(61.5)	12(4.0)	0(0.0)	0(0.0)
Knowledge about CAM is important to patients	131(43.5)	154(51.2)	16(5.3)	0(0.0)	0(0.0)
CAM products are effective	69(22.9)	148(49.2)	84(27.9)	0(0.0)	0(0.0)
CAM product have less side effect than convention medicine	31(10.3)	107(35.5)	114(37.9)	49(16.3)	0(0.0)
Continuous education on CAM product should be mandatory for health professional	75(24.9)	189(62.8)	37(12.3)	0(0.0)	0(0.0)

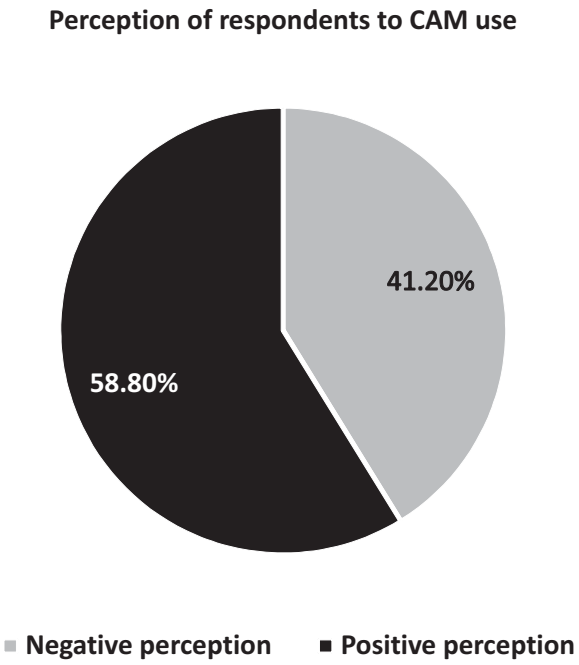

Figure 1: Perception of respondents to the use of CAM

Table 6 shows that respondents who were married/cohabiting had better knowledge (56; 70.0%) of CAM compared with others. The difference was statistically significant ($p<0.05$). Similarly, level of education was significantly associated with knowledge of CAM as majority (171; 64%) of respondents with higher educational qualification had more knowledge of CAM ($p<0.001$). Also, respondents who earned more (N100,000.00) had significantly better knowledge of CAM compared with those who earned less ($p<0.05$).

Table 6- Association of socio-demographics variables and knowledge of respondents on CAM

Variable	Knowledge of CAM		Total	Test statistics
	Good (n=181; 60.1%)	**Poor (n=120; 32.9%)**	**(n=301; 100%)**	
Age group (in years)				
18-24	43(56.6)	33(43.4)	76(100.0)	x^2= 6.609
25-34	82(57.3)	61(42.7)	143(100.0)	p= 0.086
35-44	44(74.6)	15(25.4)	59(100.0)	
45-54	12(52.2)	11(47.8)	23(100.0)	
Gender				
Male	39(54.2)	33(45.8)	72(100.0)	x^2= 1.405
Female	142(62.0)	87(38.0)	229(100.0)	p= 0.236
Marital status				
Single	125(57.6)	92(42.4)	217(100.0)	**x^2=** 9.861
Married	56(70.0)	24(30.0)	80(100.0)	**p= 0.007**
Divorced/separated	0(0.0)	4(100.0)	4(100.0)	
Level of Education				
Above sec. school	171 (63.6)	98 (36.4)	269 (100.0)	**x^2=** 12.460
Sec. school and below	10 (31.3)	22 (68.7)	32 (100.0)	**p= 0.000**
Occupation				x^2= 1.573
Employed	130 (62.5)	78 (37.5)	208 (100.0)	p= 0.210
Unemployed	51 (55.9)	42 (45.1)	93 (100.0	
Income			236 (100.0)	**x^2=** 6.503
<N100,000.00	133(56.4)	103 (43.6)	65 (100.00	**p= 0.011**
= N100,000.00	48 (73.8)	17 (26.2)		

Table 7 shows binary logistic regression table, respondent's level of education was found as the independent predictor of knowledge of CAM. Respondents who had secondary level of education and above were less likely to use CAM compared to those who had lower education (OR= -1.011; 95% CI=0.159-0.831).

Table 7: Predictors of knowledge of CAM among respondents

Variables	Odd ratio	95% C I	p-value
Marital status			
Single	1		
Married	20.519	0.000-	0.999
Separated/Divorced	20.951	0.000-	0.999
Level of Education			
Sec. school and below	1		
Above sec. school	- 1.011	0.159-0.831	**0.016**
Income			
<N100,000.00	1		
= N100,000.00	0.530	0.903-3.198	0.100

Table 8 shows that majority of respondents with good knowledge of CAM had positive perception towards the use (119; 65.7%) and the association was statistically significant (p = 0.003).

Table 8-Association of knowledge and perception of CAM use among respondents

Knowledge of CAM	Perception towards CAM		Total	Test statistics
	Negative (n=124; 41.2%)	Positive (n=177; 58.8%)	(n=301; 100%)	
Poor	62 (51.7)	58 (48.3)	120 (100.0)	x^2= 9.031
Good	62 (34 3)	119 (65 7)	181 (100.0)	p= **0.003**

DISCUSSION

The increasing prevalence of chronic non communicable diseases, the fear about the side effect and high cost of orthodox health care in addition to increasing level of poverty are some of the factors responsible for the search for alternative methods for management of chronic illnesses, which has led to an increasing popularity of CAM use.[12] This study found about 60% of the respondents had good knowledge of CAM. There is paucity of literature on assessment of knowledge of CAM among SCD patients. However, this finding is contradictory to studies conducted among medical students in Ghana and Saudi Arabia where deficient knowledge of CAM among the study population was reported.[36-37] The difference most likely is due to the different study respondents involved in the studies. Medical students were not likely to have good knowledge because CAM courses is not part of the curriculum.

A prevalence of 100% of ever use of CAM was found among the respondents in this study. The high prevalence found may be due to coping mechanisms shared by the social support group members and improved marketing strategy of CAM by product sellers in communities. This high prevalence corroborates a similar study carried out among Africa-Americans with sickle cell disorder where up to 92% use of CAM was reported.[29] A similar study in Lagos, reported a prevalence of 88.5% CAM use.[13] While, another study in Lagos where the use of CAM for children with chronic health conditions was evaluated reported a prevalence of CAM use (84%), however, the specific prevalence reported was 36% for children with SCD.[28] Several authors have reported low prevalence of CAM use among respondents.[38-39] This variation in reports may be due to the differences in study settings. Many of the studies were hospital based where the respondents might not be free to tell the truth, in contrast to our study which was conducted in communities. In addition, the difference in nature, cultural values, belief systems, religious practices, cost and access to conventional medicine have also been documented for the variations.[13] CAM utilization has steadily increased globally in the recent years as high as 90%.[40] The campaign for integration of CAM into orthodox medicine by World Health Organization may be a contributor to the rising prevalence.[41-42]

Relaxation was the most common type of CAM product used by respondents in this study, followed by herbs/herbal medicines. This finding corroborated a study which reported herbal medicines as second most prevalent type of CAM product used.[43] However, some studies have documented herbal medicine as the most prevalent CAM.[13,28,30] Herbal medicine is described as the foundation of traditional medicine in Africa as it is considered natural, safe and effective with no side effects.[44] The finding of this study is contrary to the report that SCD patients in Nigeria rely mostly on spiritual healing and prayers more frequently than relaxation.[13,28] Other studies have reported prayer and spiritual healing as the commonest CAM used.[25,45,46] Regardless of this variation in findings, generally herbal medicines, relaxation and spiritual prayer are the most commonly used CAM among SCD patients.

This study found that CAM use were recommended by relatives, doctors and media. This is similar to what was observed in a study in Mexico where relatives and doctors majorly influenced CAM use among respondents.[47] Similar studies in Southwestern Nigeria also found relatives as the most prevalent initiators of CAM use.[13,28] Another study reported health professionals as the third influencer of CAM use among respondents.[48] Also, media have been reported as a strong source of influence for CAM use.[13,28] All respondents in this study were on routine medication prescribed by doctor and more than half were using CAM concurrently with the prescribed medications. This finding is similar to report of a study where most respondents on conventional medications concomitantly used CAM.[28] Drug-drug interaction with dietary foods, natural drugs and supplements has been reported.[49] Ten percent of respondents in this study had ever experienced side effects of CAM, mostly inform of diarrhea. Similar findings has been reported by previous studies.[31,50] Decrease in frequency of SCD crises and hospitalization and prescription of CAM for SCD were reported as major reasons for CAM use in this study. This finding however, differ from other studies where major reasons for CAM use were being cheaper than conventional medicines, more accessible and has less side effects.[25,30] Similar findings to the present study have been reported.[28,51] In this study, the average amount spent on CAM per month was about N10,000,00 (USD30) with a range of N500.00 to N30,000.00 (USD15-90).

More than half of the respondents in this study felt comfortable discussing CAM with their health professionals for the fact that it would benefit them and they will be provided with more information and were likely to experience limited adverse effects. This may be due to the fact that some of these CAM products were recommended by doctors. A similar study also found that some of the participants reported being encouraged by healthcare professionals on CAM use.[30] This finding is

however contrary to other studies where doctors were unaware of patients 'use of CAM because of difficulty in disclosure.[28,51,52] Similarly, a substantial proportion of respondents in this study refused to disclose their use of CAM as most considered it to be safe while some never thought of discussing it and others felt they could be discouraged from using it. Similar reasons for non-disclosure have been reported.[51] It is not a surprise to find that many of the respondents were willing to recommend CAM use to others in this study. This is similar to the study in Lagos.[13] This may be due to free public advertisements of CAM by alternative practitioners exhibiting CAM as a solution to all diseases.

Respondents had a positive perception towards CAM use in this study as majority of the respondents agreed that CAM should be subjected to more scientific testing before it can be accepted by conventional doctors. Similarly, large proportion of the respondents agreed that clinical care should be integrated into the best conventional and CAM practice, while almost all agreed that knowledge about CAM is important to them as patients. Majority of them agreed that CAM products are effective, and majority strongly recommend continuous education on CAM products for health care professionals. This finding corroborates that of other studies.[53-55]

This study found that respondents who were married, those who had higher level of education and those who earned higher income showed better knowledge of CAM compared to others. However, further analysis showed that shows that respondent's level of education was the independent predictor of knowledge of CAM. A study had reported that people with higher level education and higher household incomes were more likely to use CAM.[25] Similarly, a statistically significant association was found between knowledge and perception towards CAM use. Majority who had good knowledge had positive perception towards the use of CAM.

CONCLUSION

This study found a very high prevalence and positive perception of respondents towards CAM use. Relaxation was the commonest CAM used and the use of CAM was considered to decrease the frequency of attack/hospitalization. Those who were married, who had higher monthly income, and those who had higher level of education had good knowledge of CAM. Level of education was the independent predictor of knowledge of CAM in this study. Evidence-based researches are recommended to evaluate the efficacy, effectiveness and safety of CAM products. This will provide insights and guidance for clinicians on the recommendation and use of CAM among people living with SCD.

The study was cross-sectional and self-reported information were collected, which may not be an accurate description of practice. Also, the study did not consider current use of CAM among respondents. However, this study adds to the body of scientific evidence on CAM use among SCD adult population.

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