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Complementary and Alternative Medicine Use for Treatment of Acute Illnesses in Children Living in Yenagoa Nigeria

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Authors' contributions

This work was carried out in collaboration among all authors. Author CD designed the study, wrote the protocol and wrote the first draft of the manuscript. Authors IN and OO managed the data collection and statistical analysis of the study. All authors read and approved the final manuscript.

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ABSTRACT

Background: The use of Complementary and Alternative Medicine (CAM) is on the rise globally. This study investigated the use of CAM among mothers for treating acute illnesses in their children. It provides information on the prevalence and types of CAM and reasons for their use.
Methods: This was a cross sectional study conducted with the use of interviewer administered questionnaires using multi-stage sampling technique to elicit information on socio-demographic characteristics, knowledge of CAM and the patterns of its use. All consenting mothers were used for the study.
Results: A total of 415 women were interviewed; their ages ranged from 18-42 years. Majority, 94.7% had heard of CAM but only 72.5% had ever used it. Of the CAM users, 63.2% used CAM only when the child was ill while 36.8% used it routinely. Sources of information about CAM was

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primarily from family members in 74.5% of cases with massage (62.8%) spiritual healing (41.9%) and biological products (33.2%) being the most common forms of CAM used. The symptoms which made the mothers use CAM on their children was the presence of fever (80.7%), vomiting (47.8%) and diarrhoea (37.9%). Majority (66%) of the mothers believed that CAM works and 71.8% were likely to recommend it to their friends and family. The reasons given for the use of CAM included the fact that they felt that it was more effective and cheaper than western medicine in 38.2% and 33.9% of cases respectively. The use of CAM in children by caregivers was significantly associated with age (p=0.000), religious beliefs (p=0.007), marital status (p=0.001) and socioeconomic status (p=0.000).

Conclusion: The use of CAM in children is high in Yenagoa. There is a need for appropriate public policy formulation and regulation to ensure safety of use of CAM products in children.

Keywords: Complementary; alternative; medicines; children; acute illness; Yenagoa.

1. INTRODUCTION

The use of Complementary and Alternative Medicine (CAM) has been noted to be on the rise globally [1]. CAM refers to a broad set of health care practices and non-allopathic therapies that are not part of that country's own traditional or conventional medicine and are not fully integrated into conventional medical care. Complementary medicines are treatments that are used along with other standard medical treatments while Alternative medicines are treatments that are used instead of the standard medical treatments [1].

In sub- Saharan Africa, the use of CAM is particularly high because it is culturally acceptable with several therapies such as massage, herbal remedies and biological products being practiced and handed down through generations [1-3]. The prevalence of CAM use in Nigerian children has been found to range from 30-60% [2.4,5] Oshikoya et al. [4] reported a 31.0% prevalence rate in its use among children with chronic illnesses such as sickle cell, asthma and epilepsy in Lagos. In Ibadan, Lagunju et al. [5] reported 56.6% prevalence of use of CAM among children attending an outpatient neurology clinic for management of epilepsy with biological and spiritual therapy mostly used. CAM has also been popularly used in the management of children with chronic gastrointestinal disorders, cancer and special needs [6-9]. Apart from its use for the treatment of ailments, the use of CAM has been reported in adults and children routinely for general health maintenance [10].

The uninhibited use of CAM among Nigerians has made it imperative for a closer look at its constituents and safety profile especially with regards to its use in children. The National Agency for Food and Drug Administration (NAFDAC) is a regulatory body established by the Federal Government of Nigeria in 1992 to regulate and control the manufacture, importation, exportation, distribution, advertisement, sale and use of food, drugs, cosmetics, chemicals, medical devices and packaged water [11]. Most alternative medicines and herbal products are registered under this body once manufactured thus possibly increasing their utility having being deemed "safe" for consumption. Despite this, lack of adequate research into the efficacy and safety of these medications in Africa remains a challenge which the WHO is battling to solve [1]. In a bid to achieve Sustainable Development Goal 3 which aims to promote Universal Health Coverage, there is a need to investigate the safety profiles of these CAMs in order to integrate them into the orthodox health care delivery system.

This study was thus undertaken to determine the prevalence of CAM use among mothers in Yenagoa metropolis, and describe the various types known and used for the treatment of acute illnesses in their children. This would add to the body of knowledge on CAM and assist in policy reforms in regard to its availability and use.

2. METHODS

2.1 Study Area

The study was conducted in Yenagoa Local Government Area (LGA), the capital of Bayelsa State in March 2014. Yenagoa is one of the eight LGAs in Bayelsa State, South South Nigeria and is made up of 15 political wards with an estimated 2019 projected population of 470, 275 (projected from 2006 census) [12]. The major

tribe is the Ijaw tribe, but as a new upcoming city there are an admixture of other Nigerian tribes such as the Igbos and Yorubas. Christianity is the predominant religion although some traditional religion is practiced, especially in the rural areas. A large proportion of its adult population are engaged in various economic activities that range from civil service, commerce, fishing and farming.

2.2 Sampling

2.2.1 Sample size determination

This was calculated using the formula for determining the sample size for a single population [13] to obtain a minimum sample size of 460. Inclusion criteria were women between the ages of 18 and 42 years who had at least one child and who gave informed consent. Exclusion criteria were women below the age of 18years or above the age of 42 years, those who had no child and lack of informed consent.

2.2.2 Sampling technique

The cluster sampling technique was used to select participants in the study. Every settlement in each of the 15 political wards in the LGA was identified using data from the LGA's Local Immunization Officer (LIO). Those settlements formed the sampling frame or clusters and each was assigned a number as generated from the table of random numbers. Simple random sampling technique was used to select 3 settlements from each ward, giving 45 settlements. From the sampled settlements, every eligible woman who met the inclusion criteria was interviewed.

2.3 Data Collection

Data was collected through a structured questionnaire developed by the researchers which was administered to each participant. Medical interns were trained as research assistants to facilitate administration. For participants who were not literate, the questionnaire was interpreted to them. The questionnaire was pretested amongst 20 adult residents of a semi-urban community in Okolobiri which was not involved in the study. The questionnaire contained questions on socio-demographic characteristics of the respondents, prevalence of CAM use, forms and reasons for its use for their children or wards. The CAM therapies listed included biological products such as oral and topical herbs, megavitamins and special diets, alternative medical practices such as homeopathy, rituals and scarification and physical/mind-body system therapy such as the use of meditation, massage and spiritual healing. The caregivers were asked who had recommended the CAM therapy and the effectiveness of any therapies tried.

2.4 Data Analysis

Data generated were entered into the Statistical Package for the Social Sciences (SPSS) for Windows version 22.0 software and analyzed using frequencies and percentages while Chi square test was used to determine associations between socio demographic and economic characteristics and CAM use with the level of significance set at $p \leq 0.05$.

3. RESULTS

Out of the 460 questionnaires sent out, 415 were returned giving a response rate of 90.2%. Most of the mothers were aged 30 years or higher (57.1%), had at least a secondary level of education (44.8%), were Christians(95.9%), were married (80.2%) and unemployed(31.8%). Majority (71.8%) were of the Ijaw tribe (see Table 1). About 95% of the respondents had heard of CAM but only 72.5% had ever used it. Of the CAM users, 63.2% of them used it only when the child was ill while 36.8% used it routinely. Sources of information about CAM were mostly from friends and family in 51.6% and 74.5% of cases respectively. Majority (66%) of the respondents believed that CAM works and 71.8% of them gave an affirmative answer when asked if they would recommend it to others (see Tables 2 and 3).

Massage (78.8%), spiritual healing (68.0%) and topical (61.0%) and oral use (54.7%) of biological products were the most common forms of CAM known and also the commonest used for the children when ill (see Tables 4 and 5).

The symptoms that made the mothers use CAM on their children included the presence of fever in 80.7%, diarrhea in 47.8% and vomiting in 37.9% of cases (see Table 6).

The reasons given for the use of CAM included the fact that they had seen it work on another

child and it was cheaper than western medicine in 38.2% and 33.9% of cases respectively (see Table 7).

Table 1. Socio-demographic characteristics of respondents N = 415

Variables	Frequency (%)
Age (years)	
<20	10 (2.4)
20 – 24	51 (12.3)
25 – 29	117 (28.2)
30 – 34	111 (26.7)
35 – 39	46 (11.1)
40 & above	80 (19.3)
Highest level of education	
None	49 (11.8)
Primary	40 (9.6)
Secondary	186 (44.8)
Tertiary	140 (33.7)
Religious denomination	
Anglican	80 (19.3)
Pentecostal	274 (66.0)
Catholic	44 (10.6)
Traditionalist	6 (1.4)
Jehovah's witness	6 (1.4)
Islam	5 (1.2)
Marital status	
Single	27 (6.5)
Married	333 (80.2)
Cohabiting	31 (7.5)
Separated	5 (1.2)
Divorced	1 (0.2)
Widowed	18 (4.3)
Occupation	
Doctor	7 (1.7)
Nurse	3 (0.7)
Teacher	16 (3.9)
Civil servant	72 (17.3)
Unemployed	132 (31.8)
Trader	114 (27.5)
Farmer	71 (17.1)
Tribe	
Ijaw	298 (71.8)
Igbo	25 (6.0)
Hausa	4 (1.0)
Yoruba	4 (1.0)
Others	84 (20.2)
Number of living children	
None	13 (3.1)
1	66 (15.9)
2	149 (35.9)
3	86 (20.7)
4	38 (9.2)
>4	63 (15.2)

Table 8 compares the socio-demographic characteristics of CAM users and non users. Marital status was found to be significantly associated with the usage of CAM (p = 0.001) with more of the married women using CAM. Level of education was also significantly associated with CAM usage with more women with a secondary level of education using CAM for their child's treatment (p=0.000). The use of CAM was also significantly higher in women between the ages of 30 and 34 years (p=0.000), petty traders (p=0.000) and Christians of the Pentecostal faith (p=0.007).

Table 2. Knowledge and use of CAM among respondents

Variable	Frequency (%)
Ever heard of CAM	
Yes	393 (94.7)
No	22 (5.3)
Total	415 (100.0)
***Sources of information**	
Friends	214 (51.6)
Family members	309 (74.5)
Neighbors	211 (50.8)
Church members	76 (18.3)
Mass media	74 (17.8)
Ever used CAM	
Yes	301(72.5)
No	114((27.5)
Frequency of use in CAM users	
Only when child is ill	190 (63.2)
Routinely	111 (36.8)
Total	301(100.0)

**multiple responses*

4. DISCUSSION

In this study, the prevalence of CAM use for children by their caregivers was 72.5%. This rate is higher than the 31.0% and 53.6% reported by Oshikoya et al. [4] in Nigeria and John et al. [14] in the United Arab Emirates on the use of CAM in children for the treatment of chronic and acute illnesses respectively. The higher rate could however be attributed to the fact that in our study, CAM was adopted for use not just for the treatment of acute illnesses but also for routine health maintenance. Onyiapat et al. [9] in Enugu also recorded a high rate of CAM use of 84.7% in non-ill adults; which is similar to the present study as both were population based studies unlike most of the others which were conducted in hospital or clinic settings.

Massage, spiritual healing and use of biologic products were the most common forms of CAM that were known and used by caregivers in our study. Massage is a common cultural practice in Bayelsa State which is especially used in women during pregnancy and labour and for 'strengthening' the muscles of newborn infants [15]. It is also widely used and accepted in developed countries for the treatment of osteopathic disorders and relief of musculo skeletal pain [16] Biological products such as herbal concoctions are also frequently used CAMs in Nigeria and other parts of the world [2,4,5,9,10].The use of herbal therapy despite lack of adequate regulations has been reported to be high in sub-Saharan Africa [1]. Its widespread use has been postulated to be due to parental influences [1,2]. A study on the knowledge of herbal medicine use among adolescents in Amassoma in Bayelsa State showed that a majority of the them got information about herbal therapy from their parents and less than 1% from formal education [3] of these adolescents, 90% used herbal therapy for acute illnesses such as fever, eye problems and abdominal pain and 70% found it to be effective [3].

The use of spiritual therapy such as prayers, anointing oil and blessed water was also commonly found in 32.4% of cases. This is finding is similar to that of Lagunju et al. [5] and Sanders et al. [8] where 34.3% and 40% used spiritual healings and blessings as forms of CAM for children with epilepsy and special needs respectively. Our study also found religion to be significantly associated with the use of CAM where its use was found to be higher among Christians of the Pentecostal denomination where these practices abound [17,18]. The use of spiritual therapy in the form of blessed water, anointing oil and prayers could be due to the fact that in Africa, certain illnesses are attributed to be due to underlying spiritual forces or ancestral curses [18].

Family and friends were not only the major sources of information, but also the main influencers of the use of CAM in our study. This finding was similar to the report by Oshikoya et al. [4] where relations and friends influenced the use of CAM in 76% of their respondents. Sanders et al. [8] also reported a similar finding and also found that the use of CAM was higher in those who had a family member that had an apparently good response to the therapy. The perceived effectiveness and low cost of CAM has been reported to contributed to its high use [2,19] though, Nahim et al. [20] reported that out-of - pocket cost of CAM was comparable to fees spent on orthodox physician services and medications. The fact that nearly a third of the respondents in our study found CAM cheaper and more effective than Western medicine and 71.8% were willing to recommend it to others could account for the "word of mouth" advertisement of these products, many of which are yet to pass through the appropriate regulatory agencies to ensure their safety.

The use of CAM by mothers was significantly higher in women in their 30's who were married, Christians and with lower socioeconomic status. This finding was similar to the one by Kazeem et al. [17] in which women between the ages of 30-34 who were married and of secondary level of

Table 3. Attitude towards CAM among respondents

Variable	Frequency (%)
Do you think CAM works?	
Yes	274 (66.0)
No	72 (17.4)
Not sure	69 (16.6)
Total	415 (100.0)
Use as an alternative to Western medicine (as alternative medicine)	
Yes	337 (81.2)
No	78 (18.8)
Use in combination with Western medicine (as complementary medicine)	
Yes	246 (59.3)
No	169 (40.7)
Likely to recommend CAM to others	
Yes	298 (71.8)
No	117 (28.2)

Table 4. *Forms of CAM known to respondents (n=415)

Variable	Frequency (%)
Massage	327 (78.8)
Spiritual healing	282 (68.0)
Application of kernel oil	253 (61.0)
Herbal concoctions	227 (54.7)
Application of herbs to skin	227 (54.7)
Scarification marks	205 (49.4)
Ingestion of alcohol based herbs	201 (48.4)
Ingestion of palm oil	190 (45.8)
Ingestion of non – alcohol based herbs	179 (43.1)
Application of onions & scent leaf to orifices – mouth, nose, eyes, buttocks.	169 (40.7)
Wearing of amulets and charms	80 (19.3)
Divination / Incantation	72 (17.3)
Participation in ritual and sacrifice	70 (16.9)

**multiple responses*

Table 5. *Type(s) of CAM used by respondents (n=301)

Variable	Frequency (%)
Massage	189 (62.8)
Spiritual healing	126 (41.9)
Ingestion of palm oil	100 (33.2)
Topical application of skin (Herbs)	97 (32.2)
Topical application to skin (palm kernel)	95 (31.6)
Ingestion of alcohol based herbs	92 (30.6)
Scarification marks	88 (29.2)
Ingestion of herbal concoctions	71 (23.6)
Ingestion of non alcohol based herbs	66 (21.9)
Application of onions, scent leaf to mm	57 (18.9)
Wearing of amulets & charms	17 (5.6)
Rituals for healing	4 (1.3)

**multiple responses*

Table 6. *Types of illness for which CAM was used (n=301)

Variable	Frequency (%)
Fever	243 (80.7)
Diarrhea	144 (47.8)
Vomiting	114 (37.9)
Seizures	76 (25.4)
Abdominal swelling	30 (9.9)
Breathing difficulty	30 (9.9)
Skin rashes	24 (7.9)
Loss of consciousness	20 (6.6)
Birth defect	5 (1.7)
Poor school performance	1 (0.3)

**multiple responses*

education were more likely to use CAM. The significantly higher use of CAM among married women could be due to the influence of their husbands as noted by Onyipat et al. [10] who reported a high prevalence of CAM use in male adults. In their study, marital status and low income similarly affected the use of CAM. Both Barnes et al. [21] and Davis et al. [22] in their studies reported that children whose parents use CAM were more likely to do so. Parental influence most likely contributed to the high use of CAM in the present study.

Table 7. *Reasons for use of CAM (n-301)

Variable	Frequency (%)
Seen it work on another child	115 (38.2)
Cheaper	102 (33.9)
Pressure from family relations	94 (31.2)
Recommendation from friends	90 (29.9)
More effective than western medicine	45 (14.9)
Illness is persistent	31 (10.3)
Illness is demonic	19 (6.3)
Safer	18 (5.9)
Scared of death of child	4 (1.3)

**multiple responses*

Table 8. Association between use of CAM and selected variables

Variable	Use of CAM n-301 (%)	Non- use of CAM N=114(%)	Total N=415 (%)	X^2/p
Age (years)				X^2=23.8
<20	7 (70.0)	3 (30.0)	10(100.0)	P=0.000
20 – 24	33(64.7)	18 (35.3)	51(100.0)	
25 – 29	73 (63.4)	44 (37.6)	117(100.0)	
30 – 34	77 (69.4)	34 (30.6)	111(100.0)	
35 – 39	39 (84.8)	7 (15.2)	46(100.0)	
40 & above	72 (90.0)	8 (10.0)	80(100.0)	
Highest level of Education				
None	48 (98.0)	1 (2.0)	49 (100.0)	X^2=41.52
1^0	31 (77.5)	9 (22.5)	40(100.0)	P=0.000
2^0	144 (77.4)	42 (22.6)	186(100.0)	
3^0	78 (55.7)	62 (44.3)	140(100.0)	
Religious denomination				
Anglican	71 (88.8)	9 (11.2)	80 (100.0)	
Pentecostal	184 (67.2)	90 (32.8)	274 (100.0)	X^2=15.2
Catholic	32 (72.7)	12 (27.3)	44 (100.0)	P=0.007
Traditionalist	5 (83.3)	1 (16.7)	6 (100.0)	
Jehovah's witness	5 (83.3)	1 (16.7)	6 (100.0)	
Islam	4 (80.0)	1 (20.0)	5 (100.0)	
Marital status				
Single	20 (74.1)	7 (25.9)	27 (100.0)	X^2=20.9
Married	243 (73.0)	90 (27.0)	333 (100.0)	P=0.001
Cohabiting	15 (48.4)	16 (51.6)	31 (100.0)	
Separated	5 (100.0)	0 (0.0)	5 (100.0)	
Divorced	1 (100.0)	0 (0.0)	1 (100.0)	
Widowed	17 (94.4)	1 (5.6)	18 (100.0)	
Occupation				
Doctor	0 (0.0)	7 (100.0)	7 (100.0)	X^2 = 131.8
Nurse	1 (33.3)	2 (66.7)	3 (100.0)	P=0.000
Teacher	0 (0.0)	16 (100.0)	16 (100.0)	
Civil servant	31 (43.1)	41(56.9)	72 (100.0)	
Unemployed	98 (74.2)	34 (25.8)	132 (100.0)	
Trader	104 (91.2)	10 (8.8)	114 (100.0)	
Farmer	67 (94.4)	4 (5.6)	71 (100.0)	
Tribe				
Ijaw	215 (72.1)	83 (27.9)	298 (100.0)	X^2 = 6.7
Igbo	17 (68.0)	8 (32.0)	25 (100.0)	P=0.25
Hausa	4 (100.0)	0 (0.0)	4 (100.0)	
Yoruba	1 (25.0)	3 (75.0)	4 (100.0)	
Others	64 (76.2)	20 (23.8)	84 (100.0)	
Number of living children				
0	9 (69.2)	4 (30.8)	13 (100.0)	X^2 = 69.89
1	36 (54.5)	30 (45.5)	66 (100.0)	P=0.000
2	94 (63.1)	55 (36.9)	149 (100.0)	
3	70 (81.4)	16 (18.6)	86 (100.0)	
4	34 (89.5)	4 (10.5)	38 (100.0)	
>4	58(92.1)	5 (7.9)	63 (100.0)	

The presence of fever, vomiting and diarrhoea were the major reasons for the use of CAM in this study. Lawani et al. [23] also reported fever as a major symptom in children which was usually treated at home with over the counter medications and herbal preparations prior to

presentation at the hospital. The safety of the use of CAM in children remains questionable and is of concern especially where it is used in combination with orthodox medicine [22]. Also, nearly 60% of our study respondents usually used CAM in combination with orthodox medicine. Though side effects to CAM use was not determined in this present study, one wonders if the respondents probably had less faith in the "potency" of the CAM thus the need to still use standard medical treatment. Adverse effects such as vomiting, weight loss and anaphylactic reactions, delays in use of recommended treatments and progression of diseases have been reported by some authors [24].

5. CONCLUSION

Our study gives a demographic picture of the use of CAM in acute illness in children living in Yenagoa, Nigeria. There is a need for more research into the various CAMs which are commonly used in Nigerian children in order to evaluate their safety profile and possible integration into routine orthodox practice. A need for appropriate policy framework on the regulation of use of CAM for children is hereby advocated.

CONCENT AND ETHICAL APPROVAL

The study was approved by the Research Ethics Committee of the Niger Delta University Teaching Hospital, Okolobiri and informed consent was obtained from all the participants who were willing to take part in the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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