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Prevalence and Pattern of Herbal Medicine Use in the Treatment of Common Under-five Ailments among Mothers and Caregivers Attending Clinics in Hospitals in Imo State, Nigeria: A cross-sectional study

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ABSTRACT

Introduction: Despite widespread facts about several problems associated with the use of herbal medicine, there is still wide spread evidence of increasing use in the treatment of illnesses of children especially under-five by their parents or care-givers.

Aim: To assess the prevalence and pattern of herbal medicine use in the treatment of under-five ailments among mothers and or care-givers attending clinics in hospitals in Imo State, Nigeria.

Methodology: This was a hospital-based descriptive cross-sectional study carried out among 600 mothers and or care-givers attending under-five clinics in some selected hospitals in Imo State, South-east, Nigeria. The participants were selected using stratified and systematic random sampling technique and information was collected using a pretested, semi-structured, interviewer administered questionnaire. Data analysis was carried out using Statistical Product and Service Solutions (SPSS) IBM version 22. Descriptive data was presented as frequency tables and graph.

Results: The mean age of the mothers/caregivers was 30.6±7.0 years. A high level of awareness about herbal medicine was reported among the women (82.7%).The prevalence of life-time and current use of herbal medicine among the mothers/care-givers for treatment of ailments in their under-five children were 46.0% and 33.3% respectively and the commonest herbal remedy ever used and currently used was Agbo herbal remedy (56.9% vs 58%).

Conclusion: The prevalence of herbal medicine use in the treatment of under-five ailments among the mothers/caregivers was high, thus considering its consequences, regulatory authorities must put in strict measures to control its use especially among children whose organs are still developing and could easily be damaged.

Key words: prevalence, pattern, herbal medicine, mothers, under-five, Imo State

INTRODUCTION

According to the World Health Organization (WHO), herbal medicine is defined as the materials or preparations derived from one or more plants believed to have therapeutic properties to humans, in its raw or processed form.[1] They include herbs, parts of a plant, the whole plant or a combination of these and can be used in the form of syrup, powder, oils, teas, capsules, mixed with water, mixed with alcohol or in its raw form, for ailments ranging from sore throats, to respiratory issues.[2,3] The indigenous use of herbs in treating ailments have been passed down from generation to generation, as part of the cultural tradition of a tribe or region.[4] This practice has been preserved, organized and revolutionized through several decades, and have been fully adopted into the national healthcare system of some countries like South-Korea, China, and India.[5,6] In Nigeria, the use of herbal medicine is pivotal in the practice of traditional medicine and the trend is growing, probably as a result of the economic situation in the country which makes orthodox medicine unaffordable and inaccessible to a large number of the population.[6]

Some of the herbal medicines used in treating under-five ailments include ginger, garlic, and concoctions/mixture among others.[7] The plant materials processed into herbal medicine are in different forms including berries, leaves, bark, seeds, flowers and roots. Also many prescription drugs used today in orthodox medicine, were first derived from plants.[8,9,10,11,12]

Other common herbs used in the treatment of common ailments both in children and adults in Nigeria includes Africa basil (Ocimum gratissimum L) used in the treatment of pains, diarrhea, and bacterial and fungal infections, [13,12] poison devil's pepper (Rauvolfia vomitoria) native to Western Africa is used in the treatment of snake-bites, rheumatism, fever, hypertension, epilepsy, malaria and venereal disease[15] and Aloe Vera Mill gel is effective for treatment of scabies etc.[16] The concept that herbal products are "natural" products and are harmless is still dominant among caregivers in developing countries like Nigeria.[17] However, the major setback to using herbal medicine include lack of a standardized dosing regimen, unforeseen side effect and complications. They also contribute to delay in seeking orthodox healthcare services for serious illnesses.[18]

Globally, a significant percentage of the population in both developed and developing (80%) countries relies on traditional medicine to meet their healthcare requirements including use for children, pregnant women and lactating women despite limited scientific evidence about its safety profile. [19,20,21,22, 23]

Furthermore, in the rural population of developing countries, the prevalence of herbal medicine use in caring for children and the sick is higher due to their ease of availability, affordable cost, limited access to orthodox healthcare, and the belief that herbs pose no greater side effects to the body than modern medicine.[24] Herbal medicines have been used for centuries across the globe, by communities and cultures varying from country to country. Its usage in Asia ranges from 49% in China to 65% in India.[25] A study in Indonesia found that the past month prevalence of traditional or herbal medicines use was 6.2%, with similar findings seen in Germany (5.8% in past 7 days), and Taiwan (4.7% in past one month)[26,27,28]

Similarly in African countries, the utilization of herbal medicine was 90% in Burundi and Ethiopia, 60% in Tanzania and 80% in Nigeria. [29] In 2021, about 24% of Americans reported that they have used herbal medicines in the management of their health challenges.[30] One in four children were reported to have received complementary and alternative medicine (CAM) in a study of over 500 children in the southwest of England, while two studies in North America showed that over 10% of children had used at least one form of CAM therapy.[31] Furthermore a study carried out among children admitted at Kisii Level 5 hospital Nairobi Kenya, reported that nearly two in three children (62.3%) were on herbal therapy.[18].

Another study done in Tharaka Nithi County, also in Kenya, revealed a high prevalence of herbal medicine use among under five children (89.4%).[32] Similar pattern was reported from Lagos, Nigeria, (72%) in the treatment of neonates and infants by their mother.[33]

Nevertheless a study in Imo state reported that a small proportion of the caregivers (9.8%) used herbs in the treatment of malaria in under-five while 3.7% visited both herbalists and hospitals in the treatment of childhood malaria.[34]

Though herbal medicinal products have been used for centuries in treating ailments, their quality, safety and efficacy are not fully established/documented. This is of grave concern especially when used for a vulnerable group such as under-five children whose organs are not fully developed to handle toxic substances from either the active ingredients in the herbal product or resulting substances formed from adulteration of the herbal product during its preparation.[6] This may contribute to the global death burden among under-five children which is high among developing countries. It is worthy to note that globally, almost half of the deaths of under-five children occur in six countries; China, Democratic Republic of Congo, Ethiopia, India, Nigeria, and Pakistan. Furthermore, India and Nigeria alone account for nearly a third of these deaths.[36],[37 Nigeria continues to suffer from high infant mortality rate, and this is caused by some factors such as; poverty, ignorance, weak disease prevention, and insufficient political will and manpower.[38] Many of these deaths could have been avoided with Prompt and proper medical care.[39]

Some cultural practices such as mothers resorting to native medicine rather than accessing proper medical attention when their children develop health problems related to convulsions or dysentery have been linked to increased mortality of children under-five years of age in Nigeria.[39]

Also another cultural practice which can lead to infant death is the use of different applications on the navel of the newborn, which may include cow dung, talc powder, cow urine, and cow bile to clean the umbilical cord stump after delivery and cutting of the umbilical cord.[40] There have been limited research on the use of herbal medicine in the treatment of under-five ailments and children with chronic health concerns in this part of the divide especially in Imo state. Thus the aim of this study is to assess the awareness, knowledge, attitude, prevalence of herbal medicine use in the treatment of under-five ailments and the associated consequences amongchildren of care-givers attending clinics in hospitals in Imo state, Nigeria.

METHODOLOGY

Study Area

Imo state is one of the 36 states of Nigeria and lies in the south eastern part of the country. It has a population of about 3.93 million people in 2006, comprising more males than females; 2.03m and 1.9 million people respectively.[41]The state is made up of 3 geo-political zones and 27 Local Government Areas, out of which 22 are rural while 5 are urban as designated by the National Population Commission (NPC).[41] The state is bordered by Abia state on the east, River Niger and Delta State to the West, Anambra state on the North and Rivers state to the south.The inhabitants are predominantly Igbos' though their official language is English. Christianity is the predominant religion practiced. Nevertheless, under-five mortality rate is lower in Imo State than the national figure.

Study Design/Study Population/Selection and Exclusion Criteria.

The study design was a hospital-based cross-sectional study of the knowledge, attitude and utilization of herbal remedies in the treatment of under-five illness among under-five mothers attending clinics in selected hospitals in the state. For an individual to be eligible, she must have at least an under-five child and must be attending under-five clinics in the selected hospitals.

Sample size estimation

Sample size was determined using the Cochran sample size formula for cross-sectional studies in populations greater than 10,000 as stated below; [42]

$$n = \frac{Z^2PQ}{d^2}$$

Where n = minimum sample size required, Z = standard normal deviate corresponding to 95% significance level (1.96), P = prevalence of herbal medicine use in a closely related previous study, 94.3%[43], Q = 1 – p = 0.06, d = level of precision desired for the study set at 0.05. Thus, a minimum size of 87 was calculated but a sample size of 600 was used for this study.

Sampling Technique

The selection of the participants to be studied involved two major stages.

The first stage involved the stratification of the hospitals into tertiary, secondary and Primary Health facilities and then using simple random sampling by balloting, two health facilities from each category were selected. Each category was assigned the number of participants that were enrolled and studied using proportionate simple random sampling based on weekly clinic attendance

The second stage involved the selection of the participants to be studied. The participants were selected and studied using systematic random sampling until the sample size assigned to each category was obtained. The clinic register was used as sampling frame for the selection of participants that were studied.

Data collection materials and analysis

Each eligible and consenting mother/caregiver was recruited and responses elicited from them using a pretested, semi-structured, interviewer administered questionnaire developed from the review of relevant literatures. All questionnaires were written in English language and pretested on similar set of mothers/caregiver in another health facility outside the study area. This was done, to check for the reliability, validity, appropriateness of format, wording and time needed to fill the questionnaire. The pre-test was carried out among 60 mothers/caregivers which represent 10 percent of the sample size. They were administered with the help of trained research assistants who were medical students in their final year of study and they were trained for 2 days by the researchers. The questionnaire comprised four sections: The first section obtained responses about the socio-demographic/economic characteristics of the respondents; the second section obtained information on awareness and knowledge about herbal medicine use; the third section elicited responses on the attitude of the care-givers towards herbal medicine use in the treatment of under-five ailments while the fourth section elicited responses on the prevalence, pattern/types and reported side effects of herbal medicine use.

Data collected were cleaned and validated manually, while a computer software package [Statistical Product and Service Solutions (SPSS) IBM version 22] was used for data entry and analysis. Attitude was scored using Likert scale of 1 to 5 graded in order of correctness. A total of 20 Likert scale questions were asked with a maximum score of 100. Scores of ≤60% were graded as negative (poor) attitude while >60 were graded as positive (good) attitude. Frequencies, percentages and graphical presentation of relevant variables were generated.

Ethical approval

Ethical approval was obtained from the Ethics Committee of Imo State University Teaching Hospital, Orlu, Imo State, Nigeria, prior to the commencement of the study. Also permissions were gotten from the Heads of the various institutions that were used or their representatives.Before the questionnaires were administered to the eligible participants, the concept of the study was carefully explained to each of them and verbal consent obtained from all the participants. Their confidentiality of each participant was maintained by giving code number to each enrolee rather than identifying them by their names. All the Authors hereby declare that the study was performed in accordance with the ethical standards outlined in the 1964 Declaration at Helsinki.

Results

The mean age of the mothers/caregivers was 30.6±7.0 years, with majority of the mothers/caregivers (58.0%) being within the age bracket of 24 to 34 years. Majority of the mothers/caregivers were currently married (92.7%), staying with their partner/spouse (94.8%), attends Catholic denomination (60.8%), attained tertiary education level (51.5%), and from a monogamous family union (89.4%). The commonest occupation among the mothers/caregivers was being a professional/Civil servant (37.5%). The mean parity of the participants and number of under-five were 3.4±0.5 and 1.3±0.1 respectively. Slightly above one-fifth of the mothers/caregivers (22.8%) have experienced an under-five death. The median monthly family income of the participants was N26,120.16 ($15.8) and their main source of drinking water was from borehole water (38.3%).

Most of the mothers/caregivers (82.9%) were aware about the use of herbs in the treatment of common under-five illnesses and their commonest source of information was from mass media (56.3%). The commonest type of herbal remedies known was agbo herbal mixture (65.5%) while the least known was cow dung (3.4%). Common ailments treated as mentioned by the participants were; malaria (52.0%), infectious diseases (40.1%), and diarrhoea diseases (21.6%). Commonest side effect mentioned was nausea/vomiting/diarrhoea (48.9%) which was followed by stomach upset (21.6%).

Common forms of preparation known were; mixed with water (49.8%) and mixed with alcohol (27.8%). Majority of those aware (84.9%), knew where herbal medicine can be sourced and the common sources known were; markets (67.9%), herbal homes (34.3%) and herbal shops (28.3%).

A total of 56.8% of the mothers/caregivers were in complete disagreement with the statement that herbal medicine was better than orthodox medicine with only a few of them (10.7%) agreeing that herbal medicine was simply the best. Majority of them disagree (41.3%) that it has no side effects and that it can be used at any dosage because it is natural (47.3%). Majority of the mothers/caregivers (56.0%), agree that adequate research should be conducted before approving its use and it should be used by the prescription of medical professionals (35.5%). About 34.4% of the participants disagree with the statement that one type could be used to treat several health conditions, 41.8% disagree with the statement that it has no contraindications, while 30.8% agree that it should not be used together with orthodox medications and 26.2% agree that the storage of herbs is never a problem to its potency. More of the mothers/caregivers agree that its cheap cost and affordability helps to increase use (35.5%) and also its ready availability affects use (30.7%). Majority of them disagree (37.5%) that it should be the main stay of treatment in our hospitals, nevertheless a high proportion of the participants agreed (42.5%) that there should be increased awareness on proper use of herbal medicines. About 30.1% of the mothers/caregivers agree that herbal remedies could be more effective than orthodox medications if used properly in some cases, and 46% of them agreed it could be used without NAFDAC approval , furthermore 46% of them agreed one can get infected if the processing was not carried out aseptically. Almost half of the mothers/caregivers (49%) agreed that public vendors of unapproved products should be arrested and prosecuted and that one should inform his/her physician about their use of herbal remedies respectively.

Of a total of 600 mother/caregivers interviewed, 234(39.0%) had negative (poor) attitude towards herbal medicine use in the treatment of under-five sicknesses

The life-time prevalence of herbal medicine use in the treatment of under-five illness among the mothers/caregivers was 46.0% with agbo herbal mixtures/remedy being the most commonly used (56.9%). Majority of them claim that they had ever used them sometimes (57.6%) and mixed with water (60.9%). The common ailments ever treated with herbal remedies were; malaria (39.9%), infectious diseases (33.0%), and diarrhoea diseases (29.3%). Most of the mothers/caregivers (71.4%), reported ever noticing any side effects on their children and the commonest side effect observed was diarrhoea (82.7%) with majority of the participants reporting the side effect to the place the herbs were purchased (50.3%). The common reasons given for ever use were; it was cheap (48.6%), natural (35.5%) and readily available (31.9%). Majority of the mothers/caregivers (54.4%) reported sourcing their herbal remedies from the market. The prevalence of current use of herbal remedies in the treatment of under-five ailments among the mothers/caregivers was 33.3% and the commonest herbal remedy used was agbo herbal mixtures (58.0%).

The commonest form of herbal medicines currently used was mixing herbs with water (63.5%) and majority of the participants using herbs in the treatment of under-five ailments, do use it sometimes (62.5%). The common ailments that the mothers/caregivers currently used the herbs to treat were; malaria (39.5%), infectious diseases (39.0%) and diarrhoea diseases (24.6%). More than one-third of the users (35.0%), reported that it was recommended by friends and relatives. Majority of the current users (54.5%) observed side effects in their children after use and the commonest side effect observed was diarrhoea (60.6%).

Most of them (92.7%) claim that they reported the side effects to someone else with majority of them (63.4%), reporting it to the persons that they purchased the herbal remedies from. Majority of the current users (64.5%) claim that the herbal remedies were not effective. Nevertheless the common reasons given for current use were; it is cheap (44.5%), natural in nature (35.5%), and it is readily available (34.0%).

Discussion

This study identified the level of awareness, attitude, prevalence and pattern of herbal medicine use in the treatment of under-five illnesses among mothers/caregivers attending clinics in hospitals in Imo State. A high level of awareness about herbal medicine use and knowledge of side effects (82.7%) was observed among them though a lower proportion to this (61%) was found to have a positive attitude towards herbal medicine and its use. This pattern has been reported from other studies.[38,43,45] Nevertheless a study conducted in Oyo State Nigeria reported a poor level of knowledge among the study participants.[46] The common sources of information about herbal medicine use in under-five among the women were received from the mass media, markets, friends/relatives and transport buses.

Furthermore, looking closely at the common sources of information, one could easily affirm that the level or depth of information received about herbal medicine use and occurrence of side effects could be shallow which could be more misleading than helpful since it may not have been delivered by health professionals. Thus government should enforce the ban on advertisement of products that were not approved by the regulating agencies and also screen any health information that is dished out through any of advertisement portals to the unsuspecting public.

The prevalence of life-time use and current use of herbal remedies in the treatment of under-five illnesses among the mothers/caregivers were 46.0% and 33.3% respectively. Prevalence rates higher than what was observed in this study has been reported from several studies ranging between 56.6% that was reported from a study in Northern Cyprus, Turkey to as high as 96.0% from a study conducted in Oyo State, Nigeria.[18,32,33,43,44,47,48] Conversely, figures lower than what was observed in this study have been reported from other studies.[26,27,31,34] Nevertheless some other studies reported figures similar to what was observed in this study.[49,50] It has been documented that the use of herbal medicine alone or in combinations with orthodox medicines varies widely across locations even within the same country or regions of a country.[30] These variations in use can be due to differences in cultural beliefs, demographic and economic patterns of the population, lack of availability/affordability of health care services, types of herbal products prevalent in a locality among others. The commonest type of herbal remedy ever used and currently used by caregivers in the treatment of under-five ailments was the agbo herbal remedy/mixture. This was consistent with finding reported in a study among urban residents in Lagos, Nigeria in which the participants mentioned agbo remedies/mixtures as the commonest type they used to treat common ailments.[51]

Agbo herbal remedy is a herbal mixture containing several herbal products and made up of different kinds of agbo which are used to treat different ailments be it health or spiritual depending on the conditions and the herbs used. [51] Generally these remedies are unstandardized, there is no process to give agbo pharmacokinetics and pharmacodynamics profile.[51]

Previously it was commonly used among the Yoruba ethnic nationality of Nigeria but it has gained widespread acceptance and usage among persons from other tribes in Nigeria. This is of grave public health importance especially now that we know that the herbs used were not properly researched upon.

The common ailments observed in this study to have been treated with herbal medicines among the under-five children were; malaria, infectious diseases and diarrhoea diseases. Reports from other studies has revealed that a lot of variations exist in the type of diseases treated with herbal medicine among under-five which ranges from acute to chronic health conditions involving infectious, non-infectious, genetic, degenerative, systemic conditions etc.[18,22,32,33,34,44, 46, 47,50, 49] A study conducted in Lagos, Nigeria by Oreagba et al., reported malaria and increased blood sugar as the common ailments treated with herbal remedies while another study from Oyo state, Nigeria, reported malaria and Haemorrhoids.[46,51] Also a study from Kenya reported that herbs were mostly used to treat gastrointestinal disorders, respiratory disorders, skin disease/trauma and malaria while another from Germany reported common use in the treatment of cough and colds.[32,47]

About 35.5% of current users reported that the herbal remedies used in the treatment of the ailments in their children were effective, while slightly above half of the current users reported that they noticed some side effects on their child and the commonest side effect noticed was diarrhoea (frequent stooling). Adverse effects to herbal medicine use either alone or in combination has been widely reported.[51] Oreagba et al.

in their study from Lagos, Nigeria reported a lower prevalence of side effect among users (20.8%) when compared to what was observed from our study but they reported that a higher proportion than ours claimed that use was effective.[51 Furthermore another study from Lagos reported an even lower proportion of side effect among the users (4%).[33] In a study from Aba, Abia State, Nigeria, about 28.9% of the mothers admitted that herbal medicine was the best form of treatment and 41.7% of them claim they encourage other mothers to embrace traditional medicine utilization.[43] This is not surprising as most of these drugs come in their raw forms, unstandardized and can be taken in overdose, sometimes contaminated with chemicals used during planting and storage. The common reasons given by the users both for life-time and current use were; it is cheap, natural to use, readily available and effective/reliable. Similar reasons has been reported from other studies with little or no variations.[32,46,51,52] With the level of economic hardship and prevalent poverty in the country, there is a higher likelihood that cheaper alternatives could easily be patronized especially by mothers from poor households.

Conclusion

Despite the fact that this study was conducted in a hospital setting, the prevalence of herbal medicine use was still relatively high. This could be higher among households in the general population where access to adequate health care services may be lacking. The level of awareness about herbal medicine use was high and majority of participants had good attitude towards herbal medicine use.

This high level of awareness and good attitude towards use of herbal medicine among the study population may partly explain why the prevalence of ever use and current use for treating under-five children was found to be high among the study population. This is of grave public health concern as this can worsen under-five morbidity and mortality outcomes in a region already battling with high infant and under-five mortality rates. Furthermore, other factors could be influencing the use of herbal medicine among the women and should be explored in other studies. Thus there is need to fund and conduct more research to fill this gap in information especially in this part of the divide where research is given little or no attention by the government. The government should ensure the right information about herbal medicine use and consequences is disseminated among the populace through the right channel by the right people.

Limitations

This was a cross-sectional study and thus data collection may have been affected by recall bias. The mothers/caregivers were the ones interviewed so they may not be able to report accurately the health conditions of their under-five children who are not able to speak. Furthermore, this was a hospital-based study which may not be able to reflect the true state of herbal medicine use in the general population. Thus caution should be taken when generalizing the finding of this study. Nevertheless the strength of the study lies in the fact that a pretested questionnaire was used and it was interviewer administered.

Authors' contributions

CBD contributed to the study design and the data collection, performed the data analysis, interpreted the result and drafted the manuscript. All other authors contributed to the study design, data collection and critical revision of the manuscript. All authors read and approved the final manuscript

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Competing interest

The authors hereby declare no competing interest.

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Table 3.1: Socio-demographic and Household characteristics of the Participants

Variable	**Frequency (N=600)**	**Percentage**
Age of women (yrs)	**Mean age=30.6±7.0 years**	
15-24	102	17
25 – 34	348	58
35-44	133	22.2
≥45	17	2.8
Marital status		
Married	556	92.6
Separated	22	3.7
Divorced	18	3
Single	4	0.7
Religion		
Catholic	365	60.8
Non-Catholics	220	36.7
Tradition religion	13	2.2

Islam	2	0.3
Level of education attained		
None	3	0.5
Primary	25	4.2
Secondary	263	43.8
Tertiary	369	51.5
Occupation		
Professional/public servants	225	37.5
House wife	130	21.7
Student	126	21
Artisan	67	11.2
Trader/businesswoman	43	7.2
Clergy	9	1.4
Type of family/marriage (n=596)		
Monogamous	537	89.5
Polygamous	63	10.5
Parity of women	**Mean parity= 3.37±0.5**	
1	88	14.7
2	185	30.8
3	131	21.8
4	67	11.2
>4	129	21.5

Number of under-fives	**Mean no. of under-five=1.3±0.1**	
1	311	51.8
2	214	35.7
3	69	11.5
≥4	6	1
Ever had an under-five death		
Yes	137	22.8
No	463	77.2
Currently living with partner/spouse		
Yes	569	94.8
No	31	5.2
Estimated monthly family income (Naira) Median family income= N26,120.16 ($15.8)		
<10,000	23	3.8
10,000-20,000	156	26
21`,000-30,000	129	21.5
31,000-40,000	50	8.3
41,000-50,000	36	6
>50,000	206	34.4
Main source of drinking water		
Borehole	230	38.3
Sachet water	125	20.9
Tap water	123	20.5
Bottled water	92	15.3
Stream/river water	30	5

Table 3.2: Awareness and Knowledge about herbal medicine use among the Participants

Variable	Frequency	Percentage
Awareness about the use of herbs in the treatment of under-five illness (N=600)		
Yes	496	82.7
No	104	17.3
Source(s) of information (n=496)**		
Mass media	279	56.3
Markets	130	26.2
Friends/relatives	129	26
Transport services	105	21.2
School/books	66	13.3
Town criers	65	13.1
Posters/sign boards/flyers	59	11.9
Traditional Birth Attendants	55	11.1
Workshop/seminars	54	10.9
Public places	38	7.7
Churches	34	6.9
Health personnel	4	0.8
August meeting	3	0.6
Types of herbs known (n-496)**		
Agbo herbal remedy/mixture	325	65.5
Garlic	102	20.6
Human/animal urine	100	20.2
Ginger	91	18.3
Concoction/mixtures	73	14.7
Nzu (clay mixture)	65	13.1

Plant roots	63	12.7
Onion water	53	10.7
Processed types	45	9.1
Cattle dung	17	3.4
Awareness about types of ailments treated with herbs (n=496)**		
Malaria	258	52
Syrup	54	10.8
Dry	20	4
Capsules/tablets	8	1.6
Awareness about source of herbal medicines (n=496)		
Yes	421	84.9
No	75	15.1
Knowledge about places herbal medicines can be procured (n=421)**		
Markets	286	67.9
Herbal homes	170	34.3
Herbal shops	119	28.3
Chemist/pharmacy	79	18.8
Hospitals	79	18.8
Traditional birth attendant place (TBA)	73	17.3
Others 1	11	2.6
Form of preparations of herbal medicines known (n=496)**		
Mixed with water	247	49.8
Mixed with alcohol	138	27.8
Raw form	79	15.9
Powder	76	15.3

Syrup	54	10.8
Dry	20	4
Capsules/tablets	8	1.6
Awareness about source of herbal medicines (n=496)		
Yes	421	84.9
No	75	15.1
Knowledge about places herbal medicines can be procured (n=421)**		
Markets	286	67.9
Herbal homes	170	34.3
Herbal shops	119	28.3
Chemist/pharmacy	79	18.8
Hospitals	79	18.8
Traditional birth attendant place (TBA)	73	17.3
Others 1	11	2.6

**= Multiple Response applicable, Others[1]= church, roadside, bus etc

Table 3.3: Attitude of the Participants towards herbal medicine use in the treatment of under-five illnesses

Variable	Strongly Agree (%)	Agree (%)	Undecided (%)	Disagree (%)	Strongly disagree (%)	Total (%) N=600
Herbal medicine is more important than orthodox medicine						
	58(9.7)	64(10.7)	137(22.8)	194(32.3)	147(24.5)	600(100)
I think it's simply the best						
	12(2.0)	106(17.7)	125(20.8)	241(40.2)	116(19.3)	600(100)
I think it has no side effects since it is natural herbs						
	52(8.7)	102(17.0)	90(15.0)	248(41.3)	108(18.0)	600(100)
I think it can be used at any dosage because it is natural						
	7(1.2)	143(23.8)	72(12.0)	248(47.3)	94(15.7)	600(100)
Adequate research should be done before approving its use						
	183(30.8)	336(56.0)	18(3.0)	35(5.8)	26(4.3)	600(100)
Do you think it should be used by the prescription of professionals?						
	101(16.8)	213(35.5)	93(15.5)	138(23.0)	55(9.2)	600(100)
The sale of herbal drugs should be regulated by relevant authorities						
	149(24.8)	272(45.3)	19(3.2)	72(12.0)	88(14.7)	600(100)
One type can be used to treat different ailments at the same time						
	26(4.3)	125(20.8)	67(11.2)	206(34.4)	176(29.3)	600(100)
Do you think it has no contraindications?						
	3(0.5)	92(15.3)	81(13.5)	251(41.8)	173(28.8)	600(100)
Do you think it should not be used together with orthodox medicines without professional advice?						
	94(15.7)	185(30.8)	91(15.2)	140(23.3)	90(15.0)	600(100)
Do you think the storage of herbs is never a problem to its potency?						
	68(11.3)	157(26.2)	135(32.5)	147(24.5)	93(15.5)	600(100)
I think Its cheap cost and affordability increases use						
	67(11.2)	213(35.5)	136(22.2)	91(15.2)	93(15.)	600(100)

Do you think its ready availability affects its use						
	84(14.0)	184(30.7)	111(18.5)	153(25.5)	68(11.3)	600(100)
Do you think it should be the main stay of treatment in our hospitals?						
	24(4.0)	105(17.5)	128(21.3)	225(37.5)	118(19.7)	600(100)
There should be increased awareness on proper herbal medicines use among the populace						
	69(11.5)	255(42.5)	84(14.0)	140(23.3)	52(8.7)	600(100)
Herbal medicine could be more effective than orthodox medicine in some cases						
	18(3.0)	181(30.1)	130(21.7)	163(27.7)	108(18.0)	600(100)
Do you think the product could be used without the NAFDAC number and approval?						
	144(24.0)	276(46.0)	72(12.0)	81(13.5)	27(4.5)	600(100)
Can one get infected if the process was not aseptically carried out?						
	127(21.2)	260(43.3)	111(18.5)	80(13.3)	22(3.7)	600(100)
Do you think that public vendors of unapproved products should be arrested and prosecuted?						
	104(17.3)	294(49.0)	81(13.5)	87(14.5)	34(5.7)	600(100)
Should one inform his physician about the use of herbal medicine?						
	153(25.5)	294(49.0)	68(11.3)	56(9.4)	29(4.8)	600(100)

*****=*negative options, NAFDAC= National Agency for Food, Drugs Administration and Control*

Table 3.4: Prevalence, Pattern and reported side effects of herbal medicine use in the treatment of under-five ailments among mothers of under-five children

Variable	Frequency	Percentage
Ever used herbal medicine in the treatment of an under-five sickness (N=600)		
Yes	276	46
No	324	54
Types of herbal remedies ever used (n=276)**		
Agbo herbal mixtures/remedy	157	56.9
Concoctions/mixtures	59	21.4
Nzu (clay mixture)	43	15.8
Onion water	33	12
Herbal roots	32	11.6
Urine (Human/animal)	27	9.8
Ginger	27	9.8
Garlic	20	7.3
Processed/tablets/capsules	17	6.2
Cattle dung	9	3.3
Frequency of ever use (n=276)		
Always	38	13.8
Often	29	10.5
Sometimes	159	57.6
Rarely	50	18.1

Forms in which herbal medicines were ever used (n=276)**		
Mixed with water	168	60.9
Mixed with alcohol	60	21.7
Syrup	55	19.9
Dry form	26	9.4
Powder	15	5.4
Raw	12	4.3
Capsule/tablets	7	2.5
Others1	26	9.4
Ailments ever treated with herbal remedies (n=276)**		
Malaria	110	39.9
Infectious diseases	91	33
Diarrhea diseases	81	29.3
Skin rashes	32	11.5
Convulsion	31	11.2
Measles	20	7.3
Birth complications	14	5.1
Pneumonia	12	4.4
Ever noticed side effects with use (n=276)		
Yes	197	71.4
No	79	28.6
Side effects ever noticed (n=197)**		
Diarrhea	163	82.7
Stomach upset/vomiting	55	29.9
Sleeplessness/restlessness	35	17.8
Generalized weakness	3	1.5
Anemia	3	1.5

Action taken after noticing the side effects (n=197)		
Reported to the source of purchase	99	50.3
Stopped medication	30.5	30.5
Reported to hospital	18	9.1
Continued medication	6	3
Other actions taken2	14	7.1
Reasons for ever use (n=276)**		
It is cheap	134	48.6
It is natural	98	35.5
Readily available	88	31.9
Effective/reliable	81	29.3
It is safe	19	6.9
Others3	21	7.6
Main source of herbal remedies ever used (n=276)		
Markets	142	51.4
Traditional birth attendant place (TBA)	47	17
Herbal home	33	12
Herbal shops	17	6.2
Pharmacy	15	5.4
Chemist	13	4.7
Hospital	9	3.3

Current use of herbal medicines in the treatment of under-five illnesses (N=600)		
Yes	200	33.3
No	400	66.7
Types of herbal medicines currently used (n=200)**		
Agbo herbal remedy	116	58
Concoctions/mixtures	40	20
Onion water	24	12
Roots	24	12
Urine (Human/animal)	21	10.5
Nzu (Clay mixture)	20	10
Ginger	20	10
Garlic	18	9
Processed/tablets/capsules	5	2.5
Cattle dung	5	2.5
Form in which herbal medicines are currently used (n=200)**		
Mixed with water	127	63.5
Mixed with alcohol	42	21
Syrup	21	10.5
Dry	17	8.5
Raw form	11	5.5
Powder	6	3
Processed/tablet/capsule	5	2.5
Others4	20	10

Frequency of current use (n=200)		
Always	27	13.5
Often	20	10
Sometimes	125	62.5
Rarely	28	14
Ailments currently treated with herbal medicines (n=200)		
Malaria	79	39.5
Infectious diseases	78	39
Diarrhea diseases	48	24
Convulsion	22	11
Measles	11	5.5
Skin disease/rashes	9	4.5
Pneumonia	4	2
Birth complications	2	1
Was the treatment effective? (n=200)		
Yes	71	35.5
No	129	64.5
Who recommended it for use (n=200)		
Friends/relatives	70	35
Herbalist	58	29
TBA worker	49	24.5
Self	17	8.5
Health personnel	6	3

Did you notice any side effects on the child after use? (n=200)		
Yes	109	54.5
No	97	45.5
Side effects observed with current use (n=109)**		
Diarrhea	66	60.6
Stomach upset/vomiting	32	29.4
Sleeplessness/restlessness	22	20.2
Did you report the side effect to anyone? (n=109)		
Yes	101	92.7
No	8	7.3
Who did you report it to? (n=101)		
Persons purchased from	64	63.4
Friends/relatives	27	26.7
Hospital personnel	10	9.9
Reasons for current use (n=200)**		
It is cheap	89	44.5
It is natural in nature	71	35.5
It is readily available	68	34
It is effective and reliable	59	29.5
It is safe	11	5.5

***= multiple Response Applicable; others1= cream, jell, inhalants, spices/food additives etc.; others2= reported to church leaders, market leader, community leaders, security agencies, NAFDAC etc.; others3= has been in use since antiquity, encouraged by my faith, have knowledge about use etc.; others4= cream, jell, inhalants, spices/food additives etc*

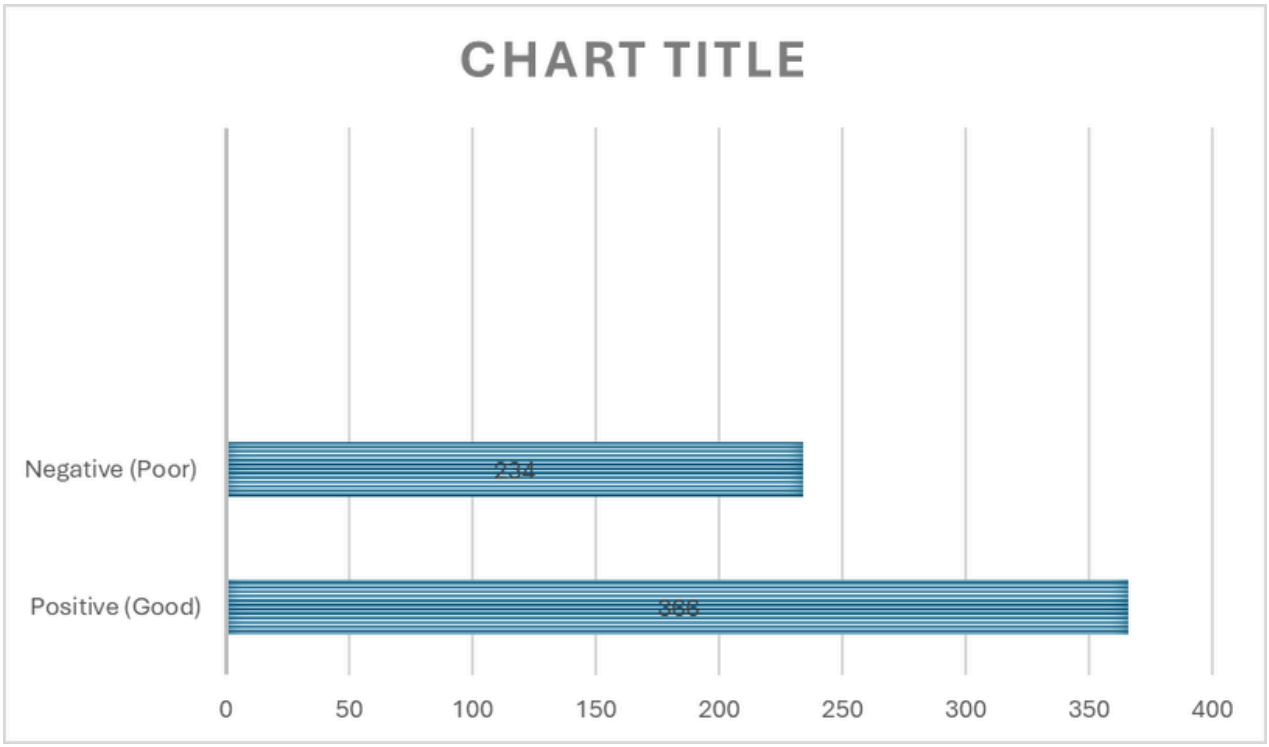

Figure 3.1: Level of attitude of the participants towards herbal medicine use in the treatment of childhood ailments