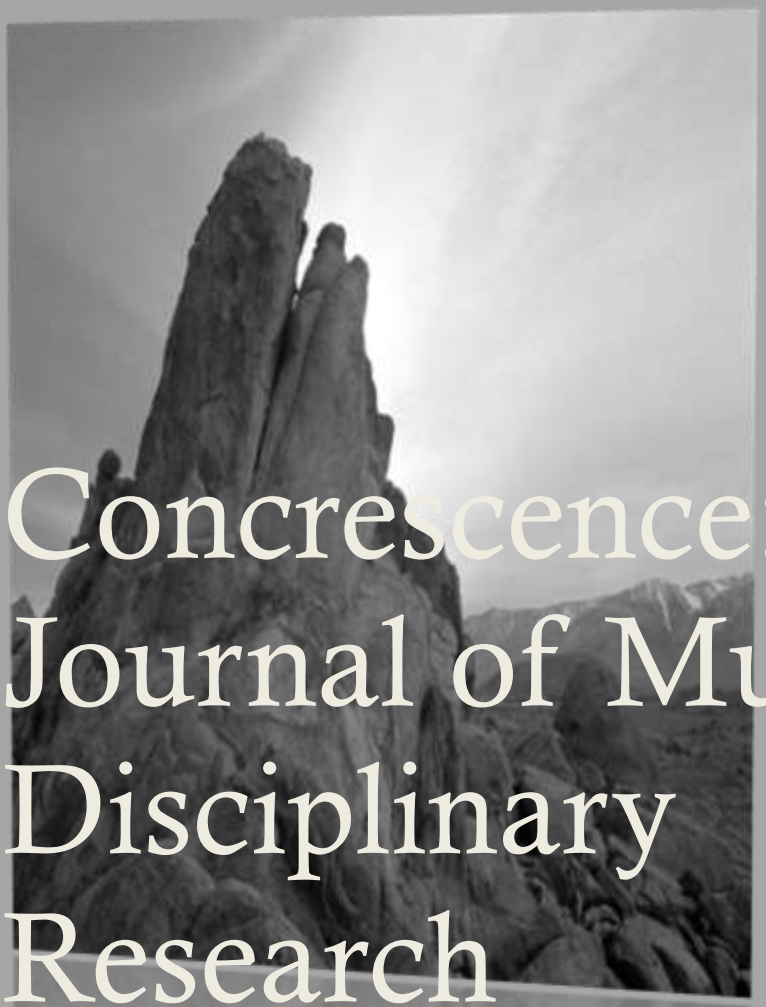

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An Evaluation of Herbal Medicine Utilization in Kaduna State

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Abstract

In the contemporary world, which is engendered with civilization driven by revolution in medicine, the level of utilizing herbal medicine is on the rise. This study focused on the utilization of herbal medicine in Kaduna State for healthcare provision. It adopted multistage sampling, and questionnaire was administered to the respondents. Data were analyzed using SPSS and Ms Excel software. The result showed that besides the herbal medicine practitioners, family members play a significant role in providing herbal medicine. There is a high level of 94% of herbal medicine usage by the respondents, of which 64 % are currently using, and 52 % have family members using HM. About 52 % of the respondents utilized herbal medicine for the purpose of curing ailments as a complementary mode of treatment, 49.5%. The most common reasons for which herbal medicine was utilized were

its ability to completely cure ailments (efficacy) 80 % and affordability; 33 %. It also reveals that 50 % of the respondents have experienced side effects from the usage of herbal medicine; the most common symptoms were vomiting, fever and skin reactions. About 80 % of the respondents are willing to recommend the usage of herbal medicine to others. The study recommended that scientific experimentation be included in herbal medicine practices to reduce the occurrence of side effects from usage.

Keywords: Herbal, Medicine, Utilization, Side effects

Introduction

Health is a significant element that affects the development of a nation. A healthy nation can be achieved through a sound healthcare delivery system. Healthcare is the maintenance or improvement of health through prevention, diagnosis, and treatment of diseases, injuries, illnesses, and other physical and mental impairments in human beings. Healthcare systems are established to meet the health needs of a targeted population (WHO, 2013). Traditional medicine as a medium of healthcare service provision is widely available globally. It is divided into three segments: herbalism, spiritualism and divination. Herbal medicines are forms of traditional medicine products made from plants or plant parts or zoological materials identified with medicinal or therapeutic properties used in the maintenance or improvement of health (National Institute of Health Office of Dietary Supplement, 2011). It is a medicinal plant in its raw form, refined in capsules, tablets, concentrates, tea, concoction and inhalants used in the management of major and minor ailments (Barnes, 2003).

Human beings faced several challenges in the early days before they learned about poisonous and medicinal plants. Challenges such as consumption of poisonous plants, vomiting, diarrhoea, death and other side effects were noticed after parts of plants and animals were consumed as food or treatment for diseases. This led to the development of the knowledge of herbal medicines (Ortiz, 2019). Furthermore, the introduction of scientific experiments to the practice of herbal medicine is improving it in several aspects, such as efficacy, dosage, method of preparation, and preservation. Herbal medicine has and is still having a significant impact on the development of Western medicine (Yuan *et al.*, 2016). Their documented properties have been useful in the production of about 25% of orthodox medicines (Ghazali *et al.*, 2019).

About 60%-90% of the population in developing countries use herbal medicine (HM) for basic health care needs (Liheluka *et al.*, 2023). The purpose for which herbal medicine is utilized depends on the individual's culture, beliefs and available natural resources. Its utilization is fuelled by the knowledge of using natural substances such as plants, animals, and minerals for healthcare maintenance (Mudonhi and Nunu, 2022). Although several herbal medicines have been scientifically tested and confirmed to be efficacious in the management of some ailments (Lawal *et al.,* 2015), some are found to interfere with synthetic drugs (Li *et al.*, 2020), and some are found to contain harmful substances such as heavy metals (Obi, 2006). The lack of scientific experimentation (Abdelmola *et al.*, 2021) thus increases the concerns of usage. Despite the challenges experienced by the utilization of herbal medicine, as revealed in many studies, there is a continuous increase in the usage of herbal medicine globally, especially in developing countries; Nigeria is no exception.

Several studies have been conducted on the utilization of herbal medicine in various geographical locations, among ethnic groups, and occupations. However, there are limited

studies on the utilization of herbal medicine in Kaduna State. Therefore, this study was conducted to provide information on the level of utilization as well as factors responsible for the utilization of herbal medicine in Kaduna State, Nigeria.

Study Area

Kaduna state is located in the Northern part of Nigeria, in the northern and southern Guinea savannah region. It is located between Longitudes 6° 05′ and 8° 38' East of the Greenwich Meridian and Latitudes 9° 03' and 11° 32' North of the Equator. It had an estimated population projection of 9,476,053 at the end of 2020 and 10.4 million by the end of 2023 (Kaduna State Development Plan, 2021). The major ethnic groups found are Hausa, Fulani, Gbagyi, Adara, Gong, Atyap, Bajju, Ninkyob, Kumara, Koro, Angworok, Mada, Atakar, and Moro'a. Kaduna State is endowed with unique vegetation that allows the production of trees, grasses, and shrubs. It encourages the growth of medicinal plants used in the preparation of herbal medicine, such as *Moringa oleifera* (moringa), *Azadirachta indica* (neem), *Adansonia digitata* (baobab), *Parkia biglobosa* (locust bean tree), *Khaya senegalensis* (khaya), *Mangifera indica* (mango), *Citrum aurantium* (bitter orange), *Zingiber officinale* (ginger), *Cucumis savivas* (cucumber) to mention a few (Ogunkalu *et al*., 2022).

Methods

The study was carried out between September and December 2024. It aimed to reveal the usage of herbal medicine among the people of Kaduna state and the factors influencing its usage. The study was conducted using a multistage sampling technique. The first stage involved using the three senatorial district headquarters in the state. The local government areas were selected using the hat and draw sampling between urban and rural areas, thus randomly choosing 2 LGAs from each senatorial district. The wards were selected using systematic random sampling, in which the wards were arranged alphabetically, and every other third was selected. The study included adults above 18 years who have been residing in Kaduna State for 3 years and above who consented to the survey. The informed consent of each participant was provided, confidentiality and privacy were maintained, and the data obtained were only used for research purposes.

Cochran's (1963) formula was used to determine the sampled population of herbal medicine users since the total population of people using herbal medicine is not known (Dougherty *et al*., 2020). This study assumes that about 50 % of the population in Kaduna State are users of herbal medicine. Cochran formula states

$$No = \frac{Z^2 pq}{e^2} \quad = \quad 384.16$$

Where N_0 denotes Sample size, Z = Z value to the desired level of confidence (95 % confidence = 1.96); p = Estimated proportion (50 %); e = Margin of error or Alpha level (5 % = 0.05); q = 1 – p.

Therefore, a total of 384 respondents were obtained as a sample size. The questionnaire was administered for data collection on the usage of herbal medicine, purpose of use, factors influencing the usage and side effects experienced from the usage of herbal medicine. The data collected from the survey were processed using the Statistical Package for Social Sciences (SPSS) and Microsoft Excel 2013 software for processing and presenting data in tables.

Result

Three hundred and eighty-four respondents participated in the study, all of whom obtained herbal medicine products from herbal medicine practitioners. Table 1 shows the sources from which herbal medicine products were obtained by the respondents aside from herbal medicine practitioners. These include relatives 113 (29.4 %), gardens 76 (19.8 %), prescriptions from orthodox medicine practitioners 43 (11.2 %) and shops 29 (7.6 %). Of the respondents who were informed of some herbal medicine practices, 76 (19.8 %) obtained medicinal plants from the garden for herbal medicine preparation.

Table 1: Sources of Herbal Medicine

Method of Obtaining HM Product	Frequency	Percentage
Herbal medicine practitioners	384	100
Orthodox medicine practitioners	43	11.2
Relatives	113	29.4
Shop	29	7.6
Garden	76	19.8

*Multiple responses

From the survey, 94.5 % (363) respondents have ever used herbal medicine (HM) for healthcare maintenance, while 5.5 % (21) have never used herbal medicine products to their knowledge, as shown in Table 2. There are 247 (64.3 %) respondents currently using HM products, and 137 (35.7 %) respondents were not presently using herbal medicine at the time of the survey. There are 203 (52.9 %) of the respondents who have family members using HM products at the time of the survey, 94 (24.5 %) were not using HM while 87 (22.6 %) were not sure as to whether or not their family members were currently using HM.

Table 2: The Usage of Herbal Medicine

Variables	Frequency	Percentage
Ever used HM		8
Yes	363	94.5
No	21	5.5
Currently using HM		
Yes	247	64.3
No	137	35.7
Member of family using HM		

Yes	203	52.9
No	94	24.5
Not sure	87	22.6

The least respondents, 101 (26.3 %), revealed that the main purpose for which they use herbal medicine is for the prevention of ailments, while the highest respondents, 198 (51.6 %), revealed herbal medicine was used mainly for the purpose of treating ailments and managing health conditions as shown on Table 3. There are also 155 (40.4 %) respondents who use herbal medicine to promote their health.

Table 3: Purpose of Utilizing Herbal Medicine

Response	Frequency	Percentage
Prevention	101	26.3
Treatment	198	51.6
Promotion	155	40.4

*Multiple responses

There are 150 (29.9 %) respondents who use herbal medicine as the first point of treatment for health conditions, and 104 (27.1 %) who use herbal medicine as an alternative healthcare to orthodox medicine. Table 4 shows that 190 (49.5 %) respondents use herbal medicine as a complementary healthcare.

Table 4: Sequential Mode of Utilizing Herbal Medicine

Response	Frequency	Percentage
First treatment	115	29.9
Alternative treatment	104	27.1
Complementary treatment	190	49.5

*Multiple responses

Most of the respondents, 210 (65.1 %), visited herbal medicine practitioners (HMPs) closest to them to obtain the products, and 134 (34.9 %) did not visit the HMPs closest to them. One hundred and twenty-five (125) respondents used a motorcycle to get to the HMPs, while 156 (40.6 %) walked to the herbal medicine practitioners. There are 103 (26.8 %) respondents who use motor vehicles to visit the herbal medicine practitioners. As shown in Table 5, it takes less than thirty minutes for 38.3 % (147) respondents to arrive at their herbal medicine practitioners of choice. The time taken for 35.9 % (138) respondents to arrive at the HMPs is between thirty minutes to one hour, 19.2 % (74) respondents take between one to two hours and 6.5 % (25) respondents take above two hours to arrive at the HMP of their choice.

Table 5: Proximity to Herbal Medicine Practitioners

Variable	Frequency	Percentage
Closeness to HMP		
Yes	210	65.1
No	134	34.9
Means of transportation		
Trekking	114	40.6
Motor cycle	125	32.6
Car	103	26.8
Time taken		
Less than 30 minutes	147	38.3
30 minute to 1 hour	138	35.9
1 hour to 2 hours	74	19.2
Above 2 hours	25	6.5

The most frequent (308; 80.2 %) reason for which herbal medicine is used by the respondents is due to its perceived efficacy. As shown in Table 6, affordability is the motivation for using herbal medicine by 125 (32.6 %) respondents, safety by 71 (18.5 %) respondents, availability by 65 (16.9 %) respondents and previous positive experience by 50 (13.0 %). Furthermore, the ability of herbal medicine to reveal its impact on the body with little or no delay motivates 26 (6.8 %) of the respondents while religious belief motivates 25 (6.5 %) of the respondents to use herbal medicine for healthcare maintenance.

Table 6: Motivations for Utilising Herbal Medicine

Motivation	Frequency	Percentage
Efficacy	308	80.2
Affordability	125	32.6
Availability	65	16.9
Less Side effects	45	11.7
Safety	71	18.5
Religious Belief	25	6.5
Previous experience	50	13.0
Fast action	26	6.8

*Multiple responses

Fifty percent of the respondents revealed they had experienced side effects from the use of herbal medicine, as shown in Table 7. The most common side effects experienced were vomiting and fever 63 (16.4 %), skin reactions such as boil experienced by 53 (13.8 %) of

the respondents, while 43 (11.2 %) experienced stooling. There are 17 (4.4 %) of the respondents experienced itching, and 6 (1.6 %) experienced swelling and other forms of side effects from herbal medicine usage. Of the respondents, 72 (18.8 %) had side effects that were very serious, and 38 (9.9 %) experienced unserious side effects. Forty-seven (12.2 %) of respondents experienced mild side effects, while 35 (9.1 %) experienced serious side effects. Some respondents who experienced severe side effects had to seek orthodox healthcare (62; 16.1 %) for the side effects, while others were relieved by stopping the herbal medicine product (46; 12.0 %). 55 (14.3 %) respondents were relieved after changing the herbal medicine product.

Table 7: Side Effects of Herbal Medicine

Side effect	Frequency	Percentage
Yes	192	50
No	192	50
Forms of side effect		
Vomiting	63	16.4
Stooling	43	11.2
Fever	63	16.4
Boil	53	13.8
Itching	17	4.4
Swelling and others	6	1.6
Severity of side effect		
Very serious	72	18.8
Serious	35	9.1
Mild	47	12.2
Not serious	38	9.9
Management of side effect		
Hospitalization	62	16.1
Stopping the product	46	12.0
Changing the product	55	14.3
Reducing the dosage	18	4.7
Nothing	11	2.9
Future use of HM		
Yes	321	83.6
No	45	11.7
Not sure	18	4.7

DISCUSSIONS

The study reveals that apart from visiting herbal medicine practitioners to obtain HM products for healthcare maintenance, some orthodox medicine practitioners prescribe over-the-counter packaged HM products. There are also some respondents who have the ability to prepare herbal medicine products with information obtained either from family members or mass media using available natural herbs from the garden or surrounding environment. This was similar to the findings of Abdelmola *et al.* (2021) and Nworu *et al.*

(2015), where friends and colleagues were the main source of information and Akinyooye and Oyebami (2019) who revealed the role of family members and mass media in providing information on herbal medicines.

Utilization of herbal medicine is highly identified by the study in which a large number of respondents (above 90%) and their family members are making use of herbal medicine for healthcare maintenance. This correlates with the findings of Aina *et al.* (2020), which revealed the utilization of herbal medicine for the last 2 years to be up to 85 %, while Abdelmola *et al.* (2021) also revealed that more than 60 % of the respondents have used and have family members using herbal medicine. They could be attributed to affordability, belief in minimal danger experienced from the use of herbal medicine and availability of medicinal plants (Ghazali *et al.* 2019).

The finding of this study reveals that herbal medicine is utilized by more than half of the respondents for the purpose of disease treatment. This is obviously due to the perception of efficacy, disease resistance, availability, affordability or experience from previous use of herbal medicine. About 40 % of the respondents utilized HM for the purpose of healthcare promotion. These include the products consumed for stomach cleansing, blood cleansing and reduction of cholesterol levels. This is similar to the findings of Okenwa (2023) and Abdelmola *et al.* (2021), which reveal that most of the respondents utilize herbal medicine mostly for the purpose of treating ailments while the least was for disease prevention.

The usage of herbal medicine as the first choice of treatment is not welcomed by most of the respondents; this is similar to the findings of Mustapha *et al.* (2016). Herbal medicine is used mostly as complementary with orthodox medicine. This is due to the belief that orthodox medicine does not provide complete cure from certain ailments and as such the need to be combined with herbal medicine for better efficacy. Most respondents either consume herbal medicine after treatment with orthodox medicine or while using orthodox medicines.

The findings from Table 5 on proximity indicated that most of the respondents visited the herbal medicine practitioners closest to them; there was little difference in the practitioners within an hour's distance. This does not correspond with the findings from Table 6, in which most of the respondents are motivated to use herbal medicine due to its efficacy. There are more people with HM practitioners close to them (about 65 %) than those who reveal that availability (about 17%) is their motivating factor.

This study revealed that the most frequent reasons for utilizing herbal medicine are efficacy, affordability and safety. The findings of Aina *et al.* (2020) revealed dissatisfaction with orthodox medicine, with efficacy and affordability being the most common factors. Okenwa (2023) disclosed that the most common factors are positive past experience, affordability and accessibility. Similarly, Liheluka *et al.*, 2023 identified affordability, cultural belief and efficacy as the most motivating factor and Osemene *et al.* (2011) long waiting time for natural composition.

This study revealed that about 50 % of the respondents experienced side effects, with only about 16 % witnessing severity that led to seeking help from orthodox healthcare. Similar to this study, Liheluka *et al.,* 2023) and Abdelmola *et al.* 2021 also revealed 50 % of the respondents experienced side effects. Other studies observed that side effects were experienced by below 50 % of the sampled populations (Aina *et al.* 2020), 47% experienced side effects, and Elechi Amadi *et al.,* 2021) 33.2 % experienced side effects. The

most common side effects experienced in this study were vomiting, fever and boil or skin reactions. This finding is similar to the result of Abiodun *et al.* (2022) and Aina *et al.* (2020), which revealed a high percent of gastrointestinal symptoms as a side effect. Consequently, Shaikh and Abdulaziz (2020) discovered skin diseases as the most common side effects. Despite the side effects experienced, the study reveals that more than 80 % of the respondents will recommend the use of herbal medicine to others. This was contrary to the findings of Mustapha *et al*. (2016), which revealed that less than 50 % of the respondents were willing to recommend the use of herbal medicine to others.

Conclusion

This study evaluated the utilization of herbal medicine in Kaduna State, Nigeria. It observed that herbal medicine was widely used in the study by the respondents and their family members. The most common purpose for which herbal medicine was sought was for the treatment of ailments as a complementary mode of treatment. From the study, it was established that the usage of herbal medicine was influenced mostly by its efficacy, affordability and safety. Although side effects were experienced from the usage of herbal medicine, some were so mild that they wore off without any action taken. The study recommended that herbal medicine practitioners should give more importance to experimentation in other to reduce the incidence of side effects. In furtherance, orthodox healthcare practitioners should be aware of the usage of herbal medicine to prevent drug and herbal reactions.

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