*Journal of Complementary and Alternative Medical Research*

*12(3): 24-34, 2020; Article no.JOCAMR.64547*
*ISSN: 2456-6276*

# Perception and Acceptance of Herbal Medicines among Residents of Port Harcourt, Nigeria

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***Authors' contributions***

*This work was carried out in collaboration among all authors. Author KNEA designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript. Authors ONB and FEK managed the analyses of the study. Authors LKG and BCA managed the literature searches. All authors read and approved the final manuscript.*

***Article Information***

DOI: 10.9734/JOCAMR/2020/v12i330209
Editor(s):
(1) Prof. Suma B V, Ramaiah University of Applied Sciences, India.
Reviewers:
(1) Eduardo Alberto Lara Reimers, Universidad Autónoma Agraria Antonio Narro (UAAAN), Mexico.
(2) Lakshmi M. Sundar, M.S. Ramaiah University of Applied Sciences, India.
Complete Peer review History: http://www.sdiarticle4.com/review-history/64547

***Original Research Article***

***Received 02 November 2020***
***Accepted 09 January 2021***
***Published 01 February 2021***

## ABSTRACT

**Background:** The use of herbal medicines and medicinal plants available in a locality in the treatment and control of human diseases, promotion of health and management of health conditions will continue to play a significant role in the healthcare system of the people, especially in developing countries. This cross-sectional study was carried out to assess the perception and knowledge of usage of herbal medicines among the residents of Port Harcourt, Nigeria.
**Methodology:** Multi-stage sampling technique was used for this study.
**Results:** The results indicated that out of the 273 questionnaires returned, 118 (44.9%) of the respondents were male while 144 (55.1%) were female. The average age of the respondents was 36±10 years. The prevalence of usage of herbal medicine from this study was 80.9%. The major source of information about herbal medicines was home (family and friends).The results also indicate that 180 (68.6%) of the respondents did not experience unpleasant effects such as headaches, vomiting, nausea and diarrhea, with the use of herbal medicines. Similarly, on the reasons for using herbal medicine, 134 (51.1%) of the respondents indicated that they used herbal

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medicines because they are effective, 66 (25.3%) said herbal medicines are always available mostly as locally sourced herbs, while 46 (17.7%) said herbal medicines are not costly. On the perception of herbal medicines, 206 (78.6%) indicated that herbal medicines are efficacious, 197 (75.3%) supported the integration of herbal medicines into the conventional health system, 243 (92.6%) supported the establishment of a Board to regulate the practice of herbal medicine in order to prevent indiscriminate use of herbal medicines while 234 (89.9%) of the respondents supported the establishment of a formal training institution for herbal medicine practitioners.

**Conclusion:** It is concluded that herbal medicines have wide acceptability and perception among the study population. It is recommended that herbal medical practice be properly regulated and integrated into the conventional health system.

*Keywords: Herbal medicine; perception; knowledge; Port Harcourt; Nigeria.*

## 1. INTRODUCTION

Herbal medicines are generally based on formulas made from herbs, mainly the extracts or ingredients of the herbs [1]. Medicinally, the most important parts of herbal plant, therefore, are the chemical constituents that can bring about desirable physiological effects on the body [2]. The most widely used herbal medicines include herbs, herbal materials, herbal preparations, and finished herbal products that contain as active ingredients parts of plants or other plant materials, or combinations [3]. Chemicals known to have medicinal effects are referred to as "active ingredients" or "active principles" and their presence depends on a number of factors including the plant species, the time and season of harvest, the type of soil, the way the herb is prepared, etc [4].

There is also a growing interest in herbal medicines in the developed countries which is evidenced by the increasing use of ethno botanicals in these regions [5]. The growing interest in the use of herbal formulations for the treatment and management of human diseases could be credited to their medicinal efficacies [6], and also because they have little or no adverse effects compared to the orthodox drugs [7]. It has been reported that the use of herbal substances was in situations of restricted access to conventional medical care, delayed care due to cost or unmet medical needs [8]. The renewed and growing interest of the world population for use of alternative medicines is predicated on several factors. Some of these factors include high cost and side effects of orthodox drugs amongst other factors [9]. Thus, herbal medicines have been and are still considered as a balanced and moderate approach to achieving health [9]. Herbal medicines have been known to possess anticancer, antidiabetic, analgesic, antfertility, antipsoriasis, antidepressive and hepatoprotective activities, as well as useful in dental care [10].

Perception is the process of attaining awareness or understanding of sensory information. The word comes from the latin words "Perceptio" and "Percepio" which means "receiving, collecting, action of taking possession and apprehension with the mind or senses" [11].

Every culture has its own concepts of what is health and illness [12]. Therefore, every culture has its own cultural knowledge, practices and specific institutions that reflect its own healthcare delivery system, suitable for her people. The response to illness often reflects a society's medical beliefs about the causes of health problems, choices of treatment options, and other health-related concerns [13].

There is inadequate research data on the perception and knowledge of usage of herbal medicine in the area of this study. This study, therefore, seeks to assess the level of perception and knowledge of herbal medicines among residents of Port Harcourt, Nigeria.

## 2. METHODOLOGY

### 2.1 Study Area

This study was carried out in Port Harcourt City, Nigeria. It is located about 64 kilometers from the Atlantic Ocean. It occupies approximately 1811.6 $km^2$ area. It constitutes the state's main city and the center of administration, commerce, and industrial activities [14]. It is situated between Latitude 4°450 N and 4°550 N, and Longitude 6°550 E and 7° 050 E. Port Harcourt is a densely populated city. With the presence of multinational oil and gas companies, the city witnesses an influx of people diverse backgrounds in search of better living.


**Fig. 1. Map of Rivers State, Nigeria (Nwauzoma and Dappa, 2013)**

## 2.2 Study Population

This cross-sectional study was carried out in three hundred and forty (340) residents of Port Harcourt City. The study population was determined using the formula:

$$N = \frac{Z^2PQ}{D^2}$$

Where Z= Z-score= 1.96 at 0.05
P = prevalence of use of herbal medicine in Nigeria = 66.8% [15]
Q = 1-P
D = margin of error = 0.05
This gives a sample size of 340 used for this study.

## 2.3 Eligibility Criteria

Subjects who were within the age bracket of 20-60 years and have spent at least one year in Port Harcourt, irrespective of gender or tribe, were used for this study.

## 2.4 Sampling Technique

Multistage sampling technique was used for this study. Port Harcourt metropolis has two Local Government Areas, which served as cluster units for this study. Subjects within the specified age bracket were selected for administration of the questionnaire. Residents in these parts were randomly selected for the study. Subjects were reached via various social groups of which they are members, and those who agreed to participate in the study filled out the questionnaire using the link provided.

## 2.5 Survey Instrument

The instrumentation is made of a self-designed questionnaire captioned perception and knowledge of usage of herbal medicines.

The questionnaire had 14 items made up of two (2) sections. Section A was the demographic data while section B, captioned “Perception and knowledge of Herbal Medicines” contained the items to which the respondents responded.

## 2.6 Validity of Instrument

The instrument was scrutinized by practitioners and educators in the field of Traditional Medicine. Their corrections and observations made were used to modify the instrument. Based on this, the instrument was considered valid for the study.

## 2.7 Reliability of Instrument

A test - retest method was adopted to assess the reliability of the items. By this method, ten (10) copies of the instrument were administered on individuals outside the sampling area. After two weeks, fresh copies of the same instrument were re-administered to the same individuals. The result yielded a correlation co-efficient of 0.82, which showed that the instrument was reliable and adopted for this study.

## 2.8 Administration of Instrument

The instrument was administered via online mode to the respondents who had agreed to participate in the study as described above.

## 2.9 Data Analysis

Data from this study were analyzed using SPSS version 23. Chi-square was the statistical tool used. P-values less than 0.05 were considered statistically significant. Data were presented descriptively.

# 3. RESULTS

## 3.1 Demographic Characteristics

Three hundred and forty (340) structured questionnaires were sent out for this study. Two hundred and seventy three (273) were returned, giving a response rate of 80%. However, only two hundred and sixty two (262) questionnaires were completely filled, giving a completion rate of 77%.

From the 262 subjects, 118 (44.9%) were male and 144 (55.1%) were female. The average age of the subjects was 36±10 years. Based on academic qualifications, 21 (8%) of the subjects had Senior Secondary Certificate Examination (SSCE) as their highest academic qualification, 141 (53.8%) had post-secondary qualification (OND/HND/BSc/BA), 55 (21%) had Master's degree while 45 (17.2%) had doctorate degree (PhD/DSc/DPhil). In terms of occupation, 106 (40.5%) were public servants, 58 (22.1%) were self-employed, 42 (16%) were private sector employees while 56 (21.4%) were either unemployed or doing other kinds of jobs. Based on residential area, 228 (87.2%) live in the urban area while 34 (12.8%) live in suburban area.

## 3.2 Knowledge of Usage of Herbal Medicines

Table 2 shows the questions that were asked to assess the knowledge of usage of herbal medicine by the respondents.

## 3.3 Perception of Herbal Medicines

Table 3 shows that data on the perception of herbal medicine. Subjects provided answers to such questions as: What informed your choice to use herbal medicine? Do you believe in the efficacy of herbal medicine? Do you support the integration of herbal medical practice into our hospital system?

**Table 1. Demographic characteristics of subjects**

| Demographic characteristic | Frequency (%) |
|---|---|
| Gender | |
| Male | 118 (44.9) |
| Female | 144 (55.1) |
| Age (Years) | 36 ± 10 |
| Academic qualifications | |
| SSCE | 21 (8) |
| OND/HND/BA/BSc | 141 (53.8) |
| MSc/MA | 55 (21) |
| PhD/DSc/DPhil | 45 (17.2) |
| Occupation | |
| Public servant | 106 (40.5) |
| Self-employed | 58 (22.1) |
| Private sector employee | 42 (16) |
| Others | 56 (21.4) |

**Table 2. Knowledge of usage of herbal medicine**

| S/No. | Questions | Frequency (%) |
|---|---|---|
| 1 | Have you used herbal medicine before? | |
| | Yes | 212 (80.9)* |
| | No | 43 (16.4) |
| | Not sure | 7 (2.7) |
| 2 | How did you get to know about herbal medicine? | |
| | Home | 170 (64.7)* |
| | School/Office | 5 (1.9) |
| | Mass Media | 44 (16.7) |
| | Others | 44 (16.7) |
| 3 | Do you know the different forms of traditional medicine? | |
| | Yes | 83 (31.7) |
| | No | 111 (42.4)* |
| | Not sure | 68 (26) |
| 4 | When was the last time you used herbal medicine? | |
| | This year | 88 (33.6) |
| | Last year | 42 (16) |
| | Not sure | 132 (50.4)* |
| 5 | How often do you use herbal medicine? | |
| | Regularly | 27 (10.4) |
| | Occasionally | 160 (61.2)* |
| | Not sure | 74 (28.4) |
| 6 | What form of herbal medicine do you use more often? | |
| | Herbs | 145 (55.3)* |
| | Supplements | 58 (22.1) |
| | Decoctions | 23 (8.6) |
| | Others | 36 (13.9) |
| 7 | Did you use herbal medicine alone or in combination with orthodox drug? | |
| | Alone | 183 (69.8)* |
| | Combination | 40 (1.3) |
| | Not sure | 39 (14.9) |
| 8 | Did you experience any unpleasant effect with the use of herbal medicine? | |
| | Yes | 32 (12.2) |
| | No | 180 (68.6)* |
| | Not sure | 50 (19.2) |
| 9 | Does the herbal medicine you take have specified dosage? | |
| | Yes | 128 (49)* |
| | No | 92 (35.1) |
| | Not sure | 42 (15.9) |

**Significant at p<0.05*

## 4. DISCUSSION

Data from this study indicate that 144 (55.1%) of the respondents who used herbal medicine were females while 118 (45.9%) were males. Thus, the number of female respondents was significantly higher ($p<0.5$) than that of male respondents. This finding agrees with an earlier work which reported a similar finding [16]. The prevalence of use of herbal medicine among African women has been reported to be as high as 80% [17]. Women consider traditional medicine to be safe for their health, especially in consideration of their reproductive health. They consider herbal medicine to be safe for use in pre-natal and post-natal health, pregnancy outcomes and breastfeeding [18]. Women also use herbal medicines to improve lactation, improve course of pregnancy and also facilitate labour [19].

**Table 3. Perception of herbal medicine**

| S/No. | Questions | Frequency (%) |
|---|---|---|
| 1 | What informed your choice to use herbal medicine? | |
| | It is safe | 16 (6.1) |
| | It is effective | 134 (51.1)* |
| | It is not costly | 46 (17.7) |
| | It is always available | 66 (25.3) |
| 2 | Do you believe in the efficacy of herbal medicine? | |
| | Yes | 206 (78.6)* |
| | No | 16 (6.1) |
| | Not sure | 40 (15.3) |
| 3 | Do you support the integration of herbal medical practice into our hospital system? | |
| | Yes | 197 (75.3)* |
| | No | 42 (16.2) |
| | Not sure | 22 (8.5) |

**Significant at p<0.05*

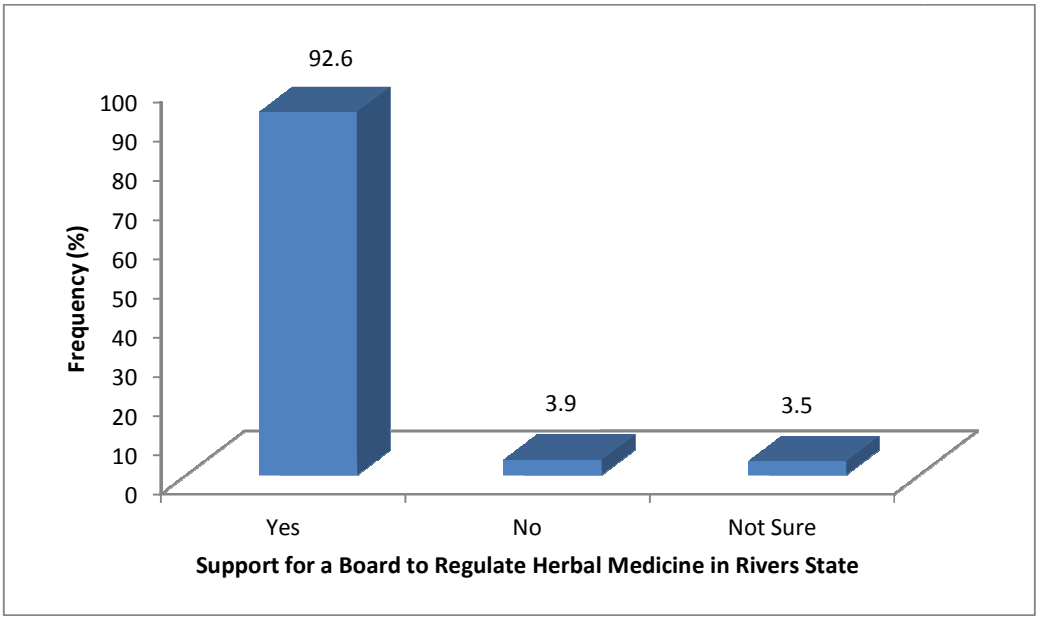


**Fig. 2. Establishment of a Board to regulate herbal medicine practice**
*Yes: 243 (92.6%), No: 10 (3.9%), Not Sure: 9 (3.5%)*

In this study, 141 (53.8%) of the respondents had post-secondary school qualification; at least a National Diploma from a higher institution, 55 (21%) had Master degree, 45 (17.2%) had doctorate degree (PhD/DSc/DPhil) while only 21 (8%) had secondary education (SSCE).Recent studies have shown that level of education has no influence on an individual's choice to use herbal medicine [20]. This is probably due to the general belief among the populace that orthodox medicine has not been able to treat some diseases, thereby making the people to seek alternative medical attention [21]. For example, some researchers have reported that some herbal formulations can be used as an alternative therapy for rheumatoid arthritis [22].

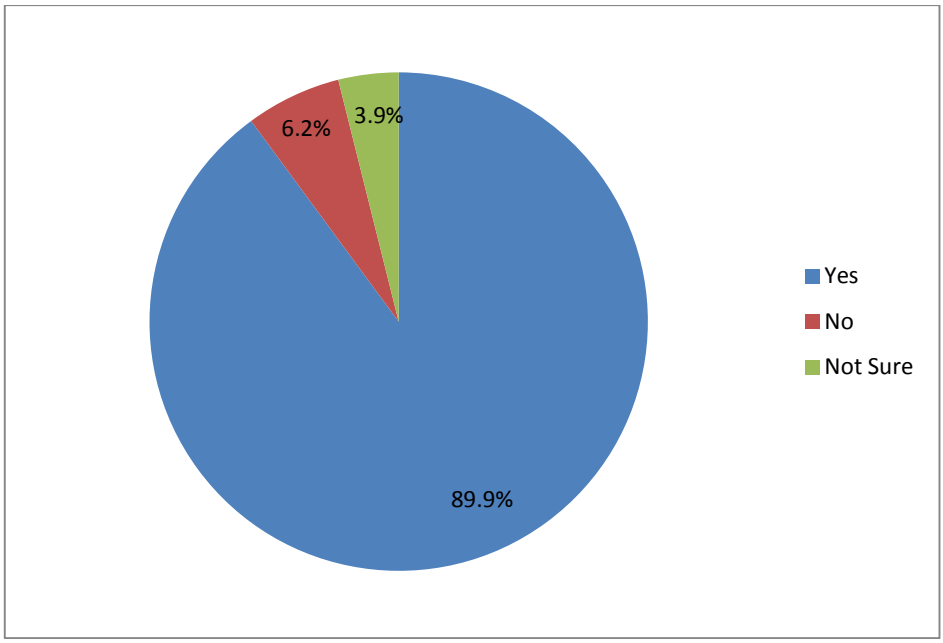


**Fig. 3. Establishment of a formal training institution for herbal medicine practitioners**
*Yes: 234 (89.9%), No: 16 (6.2%), Not Sure: 10 (3.9%)*

In terms of occupation, 106 (40.5%) of the respondents were public servants, 58 (22.1%) were self-employed, 42 (16%) were private sector employees while 56 (21.4%) were either not employed or underemployed. This means that economic status does not influence an individual's choice to use herbal medicine. This agrees with the work of another researcher [23]. Socio-economic factors such as wages have been reported to influence the patronage and use of traditional medicines [16,20]. However, this study shows that respondents of various wage status used herbal medicine. This is probably because of the perception of the people that herbal medicines are safe and efficacious. It may be due to the increasing awareness, perception and access to medicinal herbs in Nigeria [24].

The result from this study indicate that 212 (80.9%) of the respondents have used herbal medicine at one point or another in their life, 43 (16.4%) had not used herbal medicine while 7 (2.7%) were not certain whether or not they have used herbal medicine before. This high prevalence of use of herbal medicine in our population (80.9%) is close to the prevalence of 80.5% reported in Calabar metropolis by another researcher [23]. The high prevalence of use of herbal medicine observed in this study may be attributed to the fact that there is wide acceptance of herbal medicine and in some cases they are preferred to orthodox medicine [23]. Similarly, 88 (33.6%) of the respondents have used herbal medicine in the last five months, 42 (16%) have used herbal medicine in the last one year while 132 (50.4%) were not sure when they last used herbal medicine. This is probably because herbs are commonly used as both food and medicines [25]. So, these respondents may not have records of when they used herbs. These findings are probably due to the fact that herbal medicine enjoys popular usage in developing countries [15]. Also, there is an increasing awareness, perception and access to medicinal herbs in Nigeria [25] Generally, people use herbal medicines to restore, promote and maintain health, as well as treat and prevent illness [23]. The people have been reported to use plants and parts of plants for different ethno-medical purposes such as antiseptic, laxatives, purgative, anticonvulsant, expectorants, anthelmintic, and sedatives in the treatment of malaria, rheumatism, diarrhea, infertility, jaundice, dysentery, gonorrhea, fever, pains, respiratory problem and poultice, and so forth [23].

From this study, respondents obtained information about herbal medicine mainly from home. This means that family members, friends and associates shared information, knowledge

and perceptions about herbal medicine among themselves. This was followed by mass media and other sources. Office and schools proved to be the least source of information on herbal medicine. This finding is in agreement with another research finding [25], who have reported that herbal medicines were mainly recommended by family and friends. Therefore, family has a major influence on the creation of awareness of herbal medicines [24]. The danger here is that the family may not have adequate professional training to advice members on the use of herbal medicine. There is a need to enlighten the public on the dangers of this practice.

This study also indicates that majority of the respondents use herbal medicine occasionally, and the most common form of herbal medicine used is herbs, which are locally sourced from farms, gardens or bought from the markets. The respondents also indicated that they use these herbs alone, as opposed to using them in combination with conventional drugs. This agrees with another work [23]. The use of monotherapy by the respondents may be due to the awareness of the dangers that combination therapy can cause [24], although not all combination therapies are dangerous [26]. The respondents in this study have high educational exposure which may have increased their knowledge and awareness of the dangers of combined therapy of herbal drugs and conventional therapies. This may also explain the observation that 128 (49%) of respondents indicated that the herbal medicine they used had dosage indications. However, this may apply to herbal medicines that have been formulated into capsules, which are commercially available. Dosage can also be understood by the people as the amount of locally made herbal preparations (measured in glassful) to be taken at a particular time or number of times in a day. This understanding stems from the ethno-botanical studies of Port Harcourt as described by another researcher [27].

The data from this study also indicate that 180 (68.6%) of the respondents did not experience unpleasant effect with the use of herbal medicine. Also, 69% of the respondents in a similar study did not experience side effects with the use of herbal medicine [23]. This is probably because herbal medicines have little or no adverse effects such as nausea, vomiting, diarrhea, headache, like the orthodox drugs do [7]. It has been reported that herbal products are less toxic, less concentrated and more natural than orthodox drugs [28]. Most side effects of herbal substances emanate as a result of their misuse or overuse [26].

The results from this study indicate that 134 (51.1%) of the respondents use herbal medicines because they are effective, 66 (25.3%) use herbal medicines because they are always available, 46 (17.7%) use them because they are not costly. This finding agrees with another work [16], who reported that most people perceive traditional medicines as efficacious, cost-effective and a viable alternative to orthodox medicine. This observation agrees with the general belief among most people's that herbal medicines are effective, affordable and safe [24]. Herbal drugs are less costly probably because of the less cost involved in their production. The cost-effectiveness and perceived safety of herbal medicines probably account for the high prevalence of usage of herbal medicines [25].

There is a positive perception of herbal medicine in our population. This is seen in responses by the respondents; 206 (78.6%) of the respondents believe that herbal medicine is efficacious, 197 (75.3%) support the integration of herbal medicine into our hospital system. This integration will help provide the holistic care that the patients require [29]. Also, 243 (92.6%) of the respondents supported the establishment of a Board to regulate the practice of herbal medicine. As regards proper training of practitioners of herbal medicine, 234 (89.9%) of respondents supported the establishment of a formal training institution for practitioners of herbal medicine.

## 5. CONCLUSION

The data from this study indicate that herbal medicine is widely accepted among residents of Port Harcourt. Herbal medicine is considered effective, affordable and available. Herbs are the major form of herbal medicines used by the respondents. Family and friends are the major source of information on herbal medicine. Majority of the respondents did not experience adverse effects with the use of herbal medicine.

The respondents had positive perception of herbal medicine. They believe that it is efficacious, and should be integrated into the conventional health system. The respondents indicated support for the establishment of a Board to regulate herbal medicine, and a formal institution for the training of herbal medicine practitioners.

## 6. RECOMMENDATIONS

1. There should be proper regulation of herbal medicine.
2. Herbal medicine should be integrated into our conventional health system.
3. There is need to establish formal institutions for the training of herbal medical practitioners.
4. There should be public enlightenment on the possibility of adverse effects of herbal medicine.

## CONSENT

Structured questionnaires were distributed to the respondents after informed consent was obtained and responses collated and analyzed descriptively. As per international standard or university standard, respondents' written consent has been collected and preserved by the author(s).

## ETHICAL APPROVAL

It is not applicable.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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# APPENDIX 1

## Sample Questionnaire

PERCEPTION AND KNOWLEDGE OF USAGE OF HERBAL MEDICINES

Dear Respondents,

This study seeks to assess the perception and knowledge of herbal medicine among residents of Port Harcourt.

Kindly give your honest responses to the questions, if you consent to participate in this study. All information shall be treated with utmost confidentiality.

Thank you.
*Researcher*

## Section A- Demographics

S/No…… Gender…… Age(Yrs)…… Religion…….....Highest academic Qualification……. (O Level, OND, NCE, HND, BSc/BA, MSc/Med/MA, PhD, others-please specify) Occupation…… (Public servant, self-employed, private sector worker, health worker, others-please specify).

## Section B- Perception and Knowledge of Herbal Medicines

1. Have you used herbal medicine before? Yes/ No/ Not sure
2. How did you get to know about herbal medicine? Home/ School/ Others (media, friends, colleagues)
3. Do you know the different forms of traditional medicine? Yes/No/ Not sure
4. Do you believe in the efficacy of herbal medicine? Yes/ No/ Not sure
5. What informed your choice to use herbal medicine? Safety/ Effectiveness/cost/available
6. When was the last time you used herbal medicine? This year/ Last year/ Not sure
7. How often do you use herbal medicine? Regularly/ Occasionally/ Unspecified
8. What form of herbal medicine do you use more often? Herbs/ Supplements/Decoctions/Others
9. Did you use herbal medicine alone or in combination with orthodox drug? Alone/ Combination/ Not sure
10. Did you experience any unpleasant effect with the use of herbal medicine? Yes/ No/ Not sure
11. Does the herbal medicine you take have specified dosage? Yes/ No/ Not sure
12. Do you support the establishment of a formal institution to train herbal medicine practitioners in the State? Yes/No/ Not sure.
13. Do you support the establishment of a Board to regulate herbal medicines and activities of herbal practitioners in the State? Yes/ No/ Not sure
14. Do you support the integration of herbal medical practice into our hospital system? Yes/No/ Not sure.



*Peer-review history:*
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