# Knowledge, Perception and Utilization of Herbal Medicine in Treatment of Malaria in Southwestern Nigeria

Michael Oloyede Oladeji[1]*, Wakili Adelani Tijani[2], Oseyemi Akinfolarin[3], Moyosore B Adedibu[4], Olalekan Amos Oladejo[5], Adeola Oluwatobi Aminu[6]

*[1]Rn, M. Sc, PhD in Public Health, Texila American University, United Kingdom*
*[2]Rn, PhD, Professor Futoye, Federal University of Oye-Ekiti, Ekiti, Nigeria*
*[3]B. Sc, Data Analyst Lautech, Ladoke Akintola University of Technology, Ogbomosho, Nigeria*
*[4]Rn, M. Sc, Nurse Manager, Canada*
*[5]Rn, B. Nsc, Registered Nurse, University Hospital of North Tees (Nhs Trust) Bupa Care Services, United Kingdom*
*[6]Rn, M. Sc, Registered Nurse, Capital Personal Independent Payment, Bupa Care Services, United Kingdom*

## Abstract

*Malaria control has been a challenge around the world for decades. In malaria endemic nations like Sub-Saharan Africa, traditional herbal medicine is the most common option for treating malaria. About 80% of the world's population relies on the use of herbal medicine to treat a variety of diseases, and the use of plant materials in the treatment of illnesses has continuously expanded. This study sought to assess the level of knowledge and attitudes towards the use of traditional medicine in the treatment of malaria in southwest Nigeria. Descriptive design and multistage sampling techniques were utilised. During the first stage, three States were chosen through a balloting process utilising random sampling methods. Four (4) sections of the questionnaire were used to collect sociodemographic data and other factors that were important to the achievement of the given objectives. The findings revealed that 31.7% of the respondents had inadequate knowledge about traditional medicine for treatment of malaria. 20.8% had positive perceptions to the common herbal medicines used in the treatment of malaria. Majority stated malaria is not a serious disease to be concerned about, and that traditional medicine is superior to modern medicine. Conclusively, the results highlighted the respondent's lack knowledge on the consequences of traditional medicine. A strong correlation between traditional medicine uses and perception in the treatment of malaria in southwest Nigeria was also discovered. The result of the study prompted a recommendation that the public health department of the ministry of health need to intensify campaign against use of unapproved herbs for treatment of malaria.*

***Keywords;*** *Malaria, Herbal Medicine, Treatment of Malaria.*

## Introduction

Malaria control has been a burden for decades across the world. This overtime necessitated development of various initiative and agendas on global scale such as Roll Back Malaria Initiative, which introduce use of insecticide treated net, among others. Various continental and national efforts have also been made towards malaria control. However, these efforts seem not to salvage the present malaria prevalence, especially in Nigeria. Rather, there has been a consistent rise in the prevalence or malaria and its complications. [1] estimated that 229 million malaria cases were reported, with 409,000

deaths in 2019. In 2018, there were 228 million cases of malaria recorded, with 411,000 deaths. Africa bears the highest burden of global death caused by malaria. [1] reported that, Africa was home to 94% of malaria cases and deaths. [2] estimated that, there were 214 million cases of malaria in 2015 and 429,000 deaths globally. Malaria is a common infectious disease that is widespread in most tropical regions of the world, especially Asia and Sub-Saharan African countries where malaria infects about 515 million persons a year and is responsible for 1.5 to 2 million deaths per annum [2]. Most recent reports of malaria in Nigeria, shows that, 194 million people are at risk of contracting malaria infection [3].

In malaria endemic countries such as in Sub-sahara Africa, traditional herbal medicine is the most frequent option for malaria treatment. [4] believe traditional medicine such as leave, stem, root, has been used to treat malaria since ancient time and surely if it were not effective, malaria would have devastated Africa. In low and middle-income countries, the most accessible treatment is traditional medicine [5]. In these areas, native plants play a significant role in the treatment of diseases. Traditional plant-based medicines (traditional herbal medicines) have been used to treat various diseases for thousands of years. Although modern medicine may be available in some communities, traditional herbal medicines still maintain their popularity [5].

In this part of the world, malaria is usually first treated at home with herbal teas and baths prepared with neem, pawpaw, guava, and eucalyptus leaves, among others. [6] did an analysis on people's actions whenever malaria symptoms are perceived, 35.5% of their respondents used synthetic antimalarial drugs, 13.4% use local herbs, 27.3% goes to the hospital, and 18.2% will just pray [6]. This shows that, uses of herbal means for treating malaria are still significant. The use of plant materials in the management of illnesses has steadily increased with about 80% of the world population dependent on the use of herbal medicine in the management of various diseases [7]. Nigeria suffers the world's largest malaria burden with an estimated value of 45% prevalence in 2015 among children under 5 years of age [8]. It is therefore imperative to examine, perception of individual on utilization of traditional medicine in treatment of malaria. This study aims to assess the level of knowledge on malaria and examine perception towards use of traditional medicine in treatment of malaria in Southwestern Nigeria. The following hypothesis were evaluated; There is no significant relationship between knowledge and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria. There is no significant relationship between the perception and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria.

## Methods

### Study Design

Descriptive design was adopted in this study.

### Sample and Sampling Technique

Five hundred (500) respondents were selected from each of the two states (Oyo State and Ogun State) scheduled for quantitative study.

The last population census conducted in Nigeria was done over 15 years ago. This is an indication that, the population could not be a true reflection of what we have now. Therefore, a random sample of Five hundred (500) respondents were selected from each of the two states (Oyo and Ogun States) scheduled for a quantitative study, while 15 people with malaria who are used to taking herbal medicine for malaria treatment were found and used as subjects for the experiment. The essence for selecting just fifteen was based on scarcity of people who have not been subject to medical of pharmacological remedies. The total sample size was 1015 respondents.

Sample can be calculated from population based on the following proportion.

**Table 1.** Population Sampling Table

| Size of Population | Percentage of Sampling |
| --- | --- |
| 0-100 | 100% |
| 101-1000 | 10% |
| 1001-5000 | 5% |
| 5001-10,000 | 3% |
| 10,000+ | 1% |

Source: Moore, 2004

From record of projected population of the two States by Nigeria bureau of statistics, the population of each state is below or around 5 million. Therefore, selection of 500 respondents from each State is justified.

Multistage Sampling Techniques was also Adopted.

**Stage one:** three States were selected using random sampling techniques by balloting. The states include Ogun, Oyo, and Osun States, respectively.

**Stage two:** Six Local governments each were selected from Oyo and Ogun States respectively using purposive sampling techniques. This was done to have local government with equal or almost equal rural and urban representation. The total local government selected was twelve, this represents 10% of the entire Local government in southwestern Nigeria.

**Stage three:** Six communities each was selected from both States. Three each from rural and urban communities using Judgmental sampling technique. Criteria for distinguishing rural from urban setting include, specification set by association of urban and regional planning in Nigeria.

**Stage Four:** Participants were selected using systematic sampling techniques.
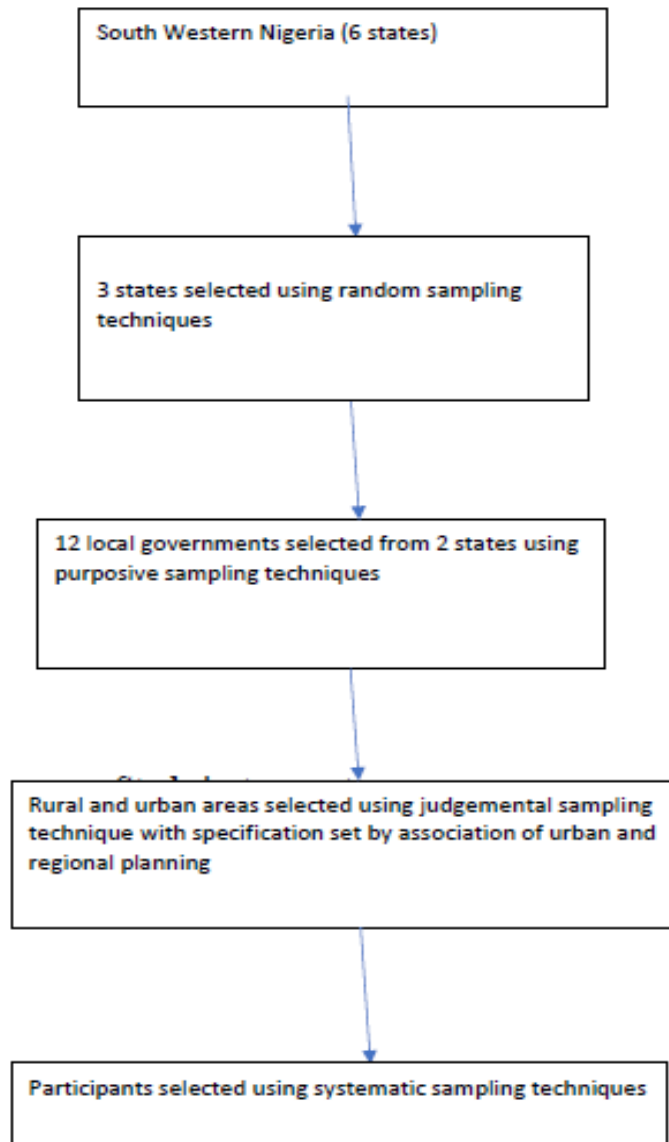
**Figure 1.** Flowchart for Multi-Stage Sampling that was used

## Study Instruments

Structured Questionnaire was adopted as instrument for data collection. Close ended questions were included in the questionnaire. The questionnaire was divided into four (4) sections, which captured socio-demographic characteristics and variables highlighted in specific objectives.

## Procedure for Data Collection

The researcher and four research assistants were trained to be involved in the administration of the copies of questionnaires to the participants. Participants were pre informed that, the research is for academic purpose only. A total of 1000 copies of draft questionnaires were distributed among respondents. Respondents were assured of confidentiality of their responses.

## Data Analysis

Data obtained from the field were edited, sorted, and processed into excel speed sheet before transfer into SPSS edition 23. Data was analysed using descriptive design. These include mean, standard deviation, minimum and maximum values, respectively. (9) also argued that the use of descriptive statistics and a frequency table can be used to extract for example, opinions of question raised in a research study. He emphasized further that descriptive statistics enable a researcher to effectively analyze data collected from the questions which addressed the respondents to the questions posed in the questionnaire. The hypotheses will be evaluated using Pearson Product Moment Correlation (PPMC).

## Results

## Demographic characteristics of Respondents

**Table 2.** Frequency Distribution of Demographic Characteristics of the Respondents

| Question | Frequency | Percentage |
|---|---|---|
| **Sex** | | |
| Male | 315 | 33.5 |
| Female | 624 | 66.5 |
| **Total** | **939** | **100.0** |
| **Age** | | |
| 18-37 years | 243 | 25.9 |
| 38-57 years | 426 | 45.4 |
| 58-77 years | 222 | 23.6 |
| 78 years & above | 48 | 5.1 |
| **Total** | **939** | **100.0** |
| **Tribe** | | |
| Yoruba | 579 | 61.7 |
| Igbo | 111 | 11.8 |
| Hausa | 27 | 2.9 |
| Others | 222 | 23.6 |
| **Total** | **939** | **100.0** |
| **Religion** | | |
| Christianity | 529 | 56.3 |
| Islam | 356 | 37.9 |
| Traditional | 54 | 5.8 |
| **Total** | **939** | **100.0** |
| **Marital status** | | |
| Single | 219 | 23.3 |
| Married | 657 | 70.0 |
| Separated | 42 | 4.5 |
| divorced | 21 | 2.2 |
| **Total** | **939** | **100.0** |
| **Occupation** | | |
| Traders | 456 | 48.6 |
| Labourers | 12 | 1.3 |

| | | |
|---|---|---|
| Students | 54 | 5.8 |
| Unemployed | 234 | 24.9 |
| Others | 183 | 19.4 |
| **Total** | **939** | **100.0** |
| **Level of education** | | |
| Primary school | 222 | 23.6 |
| Secondary schools | 330 | 35.2 |
| Tertiary institutions | 174 | 18.5 |
| No formal education | 213 | 22.7 |
| **Total** | **939** | **100.0** |

Source: Field survey, 2022

Table 2 above presents Frequency Distribution of Demographic Characteristics of the Respondents. On sex of the respondents, 33.5% were male, while 66.5% were female. Majority were females Regards the age of the respondents, 25.9% were 18-37 years old, 45.4% were 38-57 years, 23.6% were 58-77 years old, while 5.1% were 78years and above. About tribe, 61.7% of the respondents. Were Yoruba, 11.8% of the respondents were Igbo, 2.9% were Hausa, while 23.6% chose others such as Middle belt such as, Egede, Kogi, among others. About religion of the respondents, 56.3% were Christians, 37.6% were Muslims, while 5.8% practiced any of the African traditional religion. About marital status of the respondents, 23.3% were single, 70.0% were married, 4.5% were separated and 2.2% were divorced. On Occupation, 48.6% were traders, 1.3% were Labourers, 5.8% were students, while 24.9% were unemployed and 19.4% were others. Also 23.6% attended only primary school, 35.2% attended secondary schools, 18.5% attended tertiary institutions and 22.7% had no formal education.

## Knowledge on Malaria in Southwestern Nigeria

**Table 3.** Frequency Distribution of the Respondents showing Knowledge on Causative Organism of Malaria

| **Question** | **Frequency** | **Percentage** |
|---|---|---|
| **Malaria infection is caused by** | | |
| Culex Mosquito | 399 | 42.4 |
| Anopheles mosquito | 270 | 28.8 |
| Aedes mosquito | 270 | 28.8 |
| **Total** | **939** | **100.0** |

For knowledge on causative organism of malaria, 42.4% said Culex mosquito, 28.8% aid Anophelis mosquito and 28.8% also said Aedes mosquito. **S**ymptoms of malaria include all but one.

**Table 4.** Multiple Response Questions showing Opinion of Respondents on Common Symptoms of Malaria

| **Symptoms** | **Frequency** | **Percent** |
|---|---|---|
| Fever | 476 | 13.7 |
| Cold | 327 | 9.4 |
| Body pain | 342 | 9.9 |
| Leg pain | 107 | 3.1 |

| | | |
|---|---|---|
| Temperature rise | 762 | 22.0 |
| Mouth Sour | 311 | 9.0 |
| Headache | 109 | 3.1 |
| Loss of Appetite | 435 | 12.5 |
| Others | 602 | 17.3 |
| **Total** | **3471** | **100.0** |

The above table presents multiple response analysis on symptoms of malaria. The chances of selecting 3471 response were distributed as follows; 476 response was attributed to fever, 327 response was attributed to cold, 342 response was attributed to body pain, 107 response was attributed to leg pain, 762 response was attributed to Temperature rise, 311 response was attributed to Mouth Sour, 109 response was attributed to Headache, 435 response was attributed to Loss of Appetite, while, 602 response was attributed to others.

**Table 5.** Frequency Distribution of the Respondents showing General Knowledge on Traditional Medicine for Treatment of Malaria

| s/n | Items | | SA | A | D | SD | Total |
|---|---|---|---|---|---|---|---|
| 10 | Traditional medicine for malaria treatment don't have exact prescription | F | 237 | 78 | 231 | 393 | **939** |
| | | % | 25.2 | 8.3 | 24.6 | 41.9 | **100.0** |
| 11 | Traditional medicine for malaria treatment don't have exact measurement | F | 237 | 78 | 231 | 393 | **939** |
| | | % | 25.2 | 8.3 | 24.6 | 41.9 | **100.0** |
| 12 | Leaves and stem may do some harm than good to individual | F | 36 | 129 | 339 | 435 | **939** |
| | | % | 3.8 | 13.7 | 36.2 | 46.3 | **100.0** |
| 13 | Combination of alcoholic drinks and some stem/leave for malaria treatment could lead to complex health problem | F | 63 | 126 | 216 | 534 | **939** |
| | | % | 6.7 | 13.4 | 23.0 | 56.9 | **100.0** |
| 14 | Leave or stem used for malaria treatment don't have definite constituents | F | 105 | 192 | 303 | 339 | **939** |
| | | % | 11.2 | 20.4 | 32.3 | 36.1 | **100.0** |
| 15 | Treating malaria traditionally could also increase the virulence of malaria parasite in the system | F | 150 | 42 | 438 | 309 | **939** |
| | | % | 16.0 | 4.5 | 46.6 | 32.9 | **100.0** |
| 16 | Mixture of alcohol and stem/leave for malaria treatment is substance abuse | F | 138 | 198 | 276 | 327 | **939** |
| | | % | 14.7 | 21.1 | 29.4 | 34.8 | **100.0** |
| 17 | There are some approved leaves and stem for save consumption by health expert | F | 66 | 90 | 651 | 132 | **939** |
| | | % | 7.0 | 9.6 | 69.3 | 14.1 | **100.0** |
| 18 | Administering herbs to children for malaria treatment help boost their immune towards malaria infection | F | 297 | 426 | 213 | 3 | **939** |
| | | % | 31.6 | 45.4 | 22.7 | .3 | **100.0** |
| 19 | Pregnant women who take stem/leave for malaria treatment give birth to health children | F | 237 | 525 | 99 | 78 | **939** |
| | | % | 25.2 | 55.9 | 10.6 | 8.3 | **100.0** |

Source: Field Survey 2022

Table 5 presents frequency distribution of the respondents on general knowledge on traditional medicine for treatment of malaria. A few (SA= 25.2%; A=8.3%) affirmed that, traditional medicine for malaria treatment don't have exact prescription and majority (D= 24.6%; SD= 41.9%) declined. Also, a few (SA=25.2%; A= 8.3%) said traditional medicine for malaria treatment don't have exact measurement, and majority (D= 24.6%; SD= 41.9%) declined the assertion. More so, a few (SA=3.8%; A= 13.7%) opines that, Leaves and stem may do some harm

than good to individual, while majority (D=36.2%; SD=46.3%). Furthermore, a few (SA= 6.7%; A= 13.4%) affirmed that, Combination of alcoholic drinks and some stem/leave for malaria treatment could lead to complex health problem, while majority (D=23.0%; SD=56.19%) declined the assertion. Result also shows that, almost a third (SA= 11.2%; A= 20.4%) of the respondents leave or stem used for malaria treatment don't have definite constituents and a few (D= 32.3%; SD= 36.1%). Also, a few (SA= 16.0%; A=4.5%) held that, treating malaria traditionally could also increase the virulence of malaria parasite in the system and only a few (D= 46.6%; SD= 32.9%) declined. More so, slightly above a third (SA= 14.7%; A= 21.1%) opines that, mixture of alcohol and stem/leave for malaria treatment is substance abuse, while a majority (D=29.4%; SD=34.68%). Furthermore, a few (SA= 17.0%; A= 9.6%) affirmed that, there are some approved leaves and stem for save consumption by health expert, while a majority (D=69.3%; SD=14.1%) declined to the assertion. Result also shows that, majority (SA= 31.6%; A= 45.4%) of the respondents believes that, administering herbs to children for malaria treatment help boost their immune towards malaria infection and a few (D= 22.7%; SD= .3%). Result also shows that, majority (SA= 25.2%; A= 55.9%) of the respondents held that, pregnant women who take stem/leave for malaria treatment give birth to health children and a few (D= 10.6%; SD= 8.3%)

## Overall, Knowledge

## Perception Towards Common Herbal Medicine Use

**Table 6.** Frequency Distribution of the Respondents showing Perception towards Common Herbal Medicine used in the Treatment of Malaria

| s/n | Items | | SA | A | D | SD | Total |
|-----|-------|----|------|------|------|------|-------|
| 1 | Malaria could kill is not a serious disease to worry | F | 357 | 306 | 246 | 30 | 939 |
| | | % | 38.0 | 32.6 | 26.2 | 3.2 | 100.0 |
| 2 | Traditional medicine works better than modern medicine for malaria treatment | F | 420 | 366 | 71 | 72 | 939 |
| | | % | 44.7 | 39.0 | 8.6 | 7.7 | 100.0 |
| 3 | Modern medicine are mostly chalks, unlike traditional which is substance | F | 318 | 324 | 135 | 162 | 939 |
| | | % | 33.9 | 34.5 | 14.3 | 17.3 | 100.0 |
| 4 | Traditional medicine doesn't have substandard or fake unlike modern medicine for malaria treatment | F | 417 | 231 | 84 | 207 | 939 |
| | | % | 44.4 | 24.6 | 8.9 | 22.1 | 100.0 |
| 5 | Traditional medicines are easily accessible unlike modern medicine for malaria treatment | F | 324 | 468 | 63 | 84 | 939 |
| | | % | 34.5 | 49.9 | 6.7 | 8.9 | 100.0 |
| 6 | Traditional medicine doesn't have side effect unlike modern medicine for malaria treatment | F | 342 | 408 | 144 | 45 | 939 |
| | | % | 36.4 | 43.5 | 15.3 | 4.8 | 100.0 |
| 7 | Traditional medicines are natural unlike modern medicine, which are processed for malaria treatment | F | 534 | 366 | 27 | 12 | 939 |
| | | % | 58.9 | 39.0 | 2.8 | 1.3 | 100.0 |
| 8 | Healing is faster with traditional medicine | F | 309 | 459 | 108 | 63 | 939 |
| | | % | 32.9 | 48.9 | 11.5 | 6.7 | 100.0 |

Source: Field survey 2022

Table 6 presents Frequency Distribution of the respondents showing perception towards common herbal medicine used in the treatment of malaria. Majority (SA= 38.0%; A=32.6%) affirmed that, Malaria is not a serious disease to worry and few (D= 26.2%; SD= 3.2%) disaffirmed. Also, majority (SA=44.7%; A= 39.0%) said Traditional medicine works better

than modern medicine for malaria treatment and a few (D= 8.6%; SD= 7.7%) declined the assertion. More so, majority (SA=33.9%; A= 34.5%) opines that, Modern medicine are mostly chalks, unlike traditional which is substance, while a few (D=14.3%; SD=17.3%). Furthermore, majority (SA= 44.4%; A= 24.6%) affirmed that, Traditional medicine doesn't have substandard or fake unlike modern medicine for malaria treatment, while a few (D=8.9%; SD=22.1%) declined to the assertion. Result also shows that, majority (SA= 34.5%; A= 49.9%) of the respondents' Traditional medicine are easily accessible unlike modern medicine for malaria treatment, and a few (D= 6.7%; SD= 8.9%).

Furthermore, majority (SA= 36.4%; A= 43.5%) affirmed that, Traditional medicine doesn't have side effect unlike modern medicine for malaria treatment, while a majority (D=15.3%; SD= 4.8%) declined to the assertion. Result also shows that, majority (SA= 58.9%; A= 39.0%) of the respondents believes that Traditional medicine is natural unlike modern medicine, which are processed for malaria treatment and a few (D= 2.8%; SD= 1.3%) disaffirmed. Result also shows that, majority (SA= 32.9%; A= 48.9%) of the respondents held that, Healing is faster with traditional medicine and a few (D= 11.5%; SD= 6.7%) disaffirmed.

## Overall Perception

Table 7. Frequency Distribution of Respondents showing Ranking Order on Use of Traditional Medicine

| s/n | Items | | VO | O | R | N | Total |
|-----|-------|---|-----|------|------|------|-------|
| 1 | Ewe Oronbo (Lime leaves) | F | 288 | 396 | 81 | 144 | **939** |
| | | % | 30.6 | 42.2 | 11.8 | 15.3 | **100.0** |
| 2 | Dogonyaro (Neem leaves, stem bark and roots) | F | 231 | 294 | 255 | 159 | **939** |
| | | % | 24.6 | 31.3 | 27.2 | 16.9 | **100.0** |
| 3 | Ekpomangoro (Mango bark and leaves) | F | 183 | 336 | 312 | 108 | **939** |
| | | % | 19.5 | 35.8 | 33.2 | 11.5 | **100.0** |
| 4 | Ewe osan (Orange leaves) | F | 207 | 282 | 357 | 93 | **939** |
| | | % | 22.0 | 30.0 | 38.0 | 9.9 | **100.0** |
| 5 | Eweti (Lemon grass) | F | 394 | 276 | 212 | 57 | **939** |
| | | % | 42.0 | 29.4 | 22.6 | 6.1 | **100.0** |
| 6 | Ewe Kasu (Cashew leaves) | F | 222 | 258 | 168 | 291 | **939** |
| | | % | 23.6 | 27.5 | 17.9 | 31.0 | **100.0** |
| 7 | Ibepe (Paw-paw leaves) | F | 267 | 226 | 222 | 234 | **939** |
| | | % | 28.4 | 23.0 | 23.6 | 24.9 | **100.0** |
| 8 | Ewe Ogedeparanta (Plantain leaves) | F | 192 | 285 | 282 | 180 | **939** |
| | | % | 20.4 | 30.4 | 30.0 | 19.2 | **100.0** |
| 9 | Gwava (Guava leaves) | F | 252 | 225 | 231 | 231 | **939** |
| | | % | 26.8 | 24.0 | 24.6 | 24.6 | **100.0** |
| 10 | Ewe Okporokporo (Corn leaves) | F | 132 | 204 | 465 | 138 | **939** |
| | | % | 14.1 | 21.7 | 49.5 | 14.7 | **100.0** |
| 11 | Ewe Ewuro (Bitter- leaves) | F | 101 | 183 | 435 | 210 | **939** |
| | | % | 11.8 | 19.5 | 46.3 | 22.4 | **100.0** |

Table 7 presents frequency distribution of the respondents on use of traditional medicine for treatment of malaria. Majority (VO= 30.6%; O=42.2%) affirmed that, they use ewe oronbo (lime leaves), 11.8% rarely use it, while 15.3% never use it. Also, a higher percent (VO=24.6%;

O= 31.3%) said Dogonyaro (Neem leaves, stem bark and roots), 27.2% rarely use it, 16.9% never use it. More so, a higher percent (VO=19.5%; O= 35.8%) opines that, Ekpomangoro (mango bark and leaves), 33.2% rarely use it, 11.5% never use it. Furthermore, a higher percent (VO= 22.0%; O= 30.0%) affirmed that, Ewe osan (orange leaves), 38.0% rarely use it, 9.9% never use it. Result also shows that, a higher percent (VO= 21.7%; O= 29.4%) of the respondents Eweti (Lemon grass), 42.0% rarely use it, 6.1% never use it. Also, a few (VO= 22.6%; O= 27.5%) held that, Ewe kasu (cashew leaves), 17.9% rarely use it, 31.0% never use it. More so, a higher percent (VO= 28.4%; O= 23.0%) opines that, Ibepe (paw-paw leaves), 23.6% rarely use it, 24.9% never use it. Furthermore, a higher percent (VO= 20.4%; O= 30.4%) affirmed that, Ewe ogedeparanta (plantain leaves), 30.0%

rarely use it, 19.2% never use it. Result also shows that, a higher percent (VO= 26.8%; O= 24.0%) of the respondents believes that Gwava (guava leaves), 24.7% rarely use it, 24.6% never use it. Furthermore, a few (VO= 14.1%; O= 21.7%) affirmed that, Ewe okporokporo (corn leaves), 49.5% rarely use it, 14.7% never use it. Result also shows that, few (VO= 11.8%; O= 19.5%) of the respondents believes that Ewe ewuro (Bitter- leaves), 46.3% rarely use it, 22.4% never use it.

## Relationship between Knowledge and Utilisation of Traditional Medicine

**H$_0$1:** There is no significant relationship between knowledge and utilisation of traditional medicine in treatment of malaria in Southwestern Nigeria

**Table 8.** Relationship between Knowledge and Utilization of Traditional Medicine

|  | N | Mean | SD | df | r | Decision |
|---|---|---|---|---|---|---|
| Knowledge | 939 | 2.18 | .73 | 937 | -.591 | Significant |
| Use of TM | 939 | 2.62 | .91 | - | - | - |

Reject H0 if p-value <0.05.

Table 8 above presents the Relationship between knowledge and utilization of traditional medicine. Result revealed that, there is a significant relationship between knowledge and utilization of traditional medicine [r= .591; p<0.05]. However, the relationship is inverse and is such that, decrease in knowledge led to increase in usage and vice versa. This implies that, the null hypothesis which states that, there is no significant relationship between knowledge and utilization of traditional medicine in

treatment of malaria in Southwestern Nigeria is hereby rejected, while the alternative which states that, there is a significant relationship between knowledge and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria is upheld.

**H$_0$2:** There is no significant relationship between the perception and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria.

**Table 9.** Relationship between Perception and Utilization of Traditional Medicine

|  | N | Mean | SD | df | r | Decision |
|---|---|---|---|---|---|---|
| Perception | 939 | 2.08 | .93 | 937 | .611 | Significant |
| Use of TM | 939 | 2.62 | .91 | - | - | - |

P<0.05

Table 9 above presents the Relationship between perception and utilization of traditional medicine. Result revealed that, there is a

significant relationship between perception and utilization of traditional medicine [r= .611; p<0.05]. This implies that, the null hypothesis

which states that, there is no significant relationship between perception and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria is hereby rejected, while the alternative which states that, there is a significant relationship between perception and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria is upheld.

## Discussion

Findings in this study revealed that, on general note, respondents have inadequate knowledge (31.7%) traditional medicine for treatment of malaria. Although most of the respondents understand common symptoms of malaria, yet majority do not know that anopheles mosquito cause malaria. More so, respondents lack adequate knowledge that, traditional medicine for malaria treatment do not have exact prescription, exact measurement, may do some harm than good and could lead to more complex problem. This agrees with [10, 11] who affirmed that, good knowledge of any public health disease by individuals and communities seems necessary if effective treatment and preventive measures are to be realistic.

More Findings revealed that, majority of the respondents have positive perception (20.8%) toward common herbal medicine used in the treatment of malaria. This is evidence in the result presented in table 3 where most of the respondents revealed that, malaria is not a serious disease to worry and that traditional medicine is better than modern medicine with regards to effectiveness, genuine, standard, accessibility, side effect, natural, among others. Findings corroborates [12] where they found that, globally the interest in traditional medicine has increased due to easy accessibility, flexibility, low-cost, low levels of technological input, and low side effects.

Findings also revealed that, use of traditional medicine is extremely high among the respondents. This was evidence in the fact that, most of the listed traditional herbs attained the significant point. More so, the ranking depicted

that, Ewe Oronbo (lime leaves), Dogonyaro (Neem leaves, stem bark and roots) and Ekpomangoro (mango bark and leaves) are the most used herb, among others. This supported by [13] who found that over 80% of the population particularly in developing countries depend directly on plants for their primary healthcare requirements. This also agrees [14] in research carried out in Kebbi, Nigeria, who found that, herbs used in the treatment of malaria: Azadirachta indica (neem leaves), Magifera indica (Mango leaves), Citrus aurantifolia (lime), Carica papaya (paw-paw leaves), and Psidium gujava (guava leaves).

The findings revealed that, there is a significant relationship between Knowledge and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria. The reason to is that the respondents understand what herbs to use for malaria and use them, however, lack adequate of consequences attached to measurement, side effects among other. Finding agrees with [15] who found that, major predictor of utilization of herbs in treatment of malaria is knowledge. More findings revealed that, there is a significant relationship between perception and utilization of traditional medicine in treatment of malaria in Southwestern Nigeria. The plausible reason to this is that respondents attributed much to traditional medicine which led to high use. Findings is in line with the study by [16] where they found that, perception is significantly related towards practice of traditional medicine towards treatment of malaria.

## Limitations

The main limitation in this study which could be addressed in research in the future is the small sample size of subjects for the experiment due to the scarcity of people who have not been subjected to pharmacological remedies. Future research should consider extending the experiment to more states within the country.

## Conclusion and Recommendations

This study concluded that, although respondents lack adequate knowledge on traditional medicine with regards to aftermath consequences, yet they have positive perception towards its use which led to increased or prominent level of usage. The study also concluded that, a significant but inverse relationship existed between knowledge and use of traditional medicine, while a direct relationship was found between perception and use of traditional medicine.

Findings also revealed that, use of traditional medicine is extremely high among the respondents. This was evidence in the fact that, most of the listed traditional herbs attained the significant point for mean (2.5). More so, the ranking depicted that, Ewe Oronbo (lime leaves), Dogonyaro (Neem leaves, stem bark and roots) and Ekpomangoro (mango bark and leaves) are the most used herb, among others. This is supported by [17, 18] who found that over 80% of the population particularly in developing countries depend directly on plants for their primary healthcare requirements. This also agrees with [19-22] in research carried out in Nigeria, who found that, herbs used in the treatment of malaria: Azadirachta indica (neem leaves), Magifera indica (Mango leaves), Citrus aurantifolia (lime), Carica papaya (paw-paw leaves), and Psidium gujava (guava leaves). In view of these findings, it is therefore recommended that, the public health department of the ministry of health need to intensifying campaign against use of unapproved herbs for treatment of malaria. Also, the campaign should include, teaching the public those herbs approved and how to prepare it as well as quantity to take per time.

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## Conflict of Interest

The author declares that there is no conflict of interest associated with this paper.

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