

# Assessment of Public Knowledge and Attitude Towards Crude Traditional Medicine Use in Bushenyi District. A Case Study of Nyakabirizi Division, Bushenyi-Ishaka Municipality

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## Abstract

Herbal remedies have been in use since the existence of man long before the advent of science. Our great grandparents used herbal medicines for both curative and preventive purposes, even though they didn't have any scientific knowledge. Through such scientifically unproven use, some results were beneficial while others were harmful and some even resulted into fetal effects. The study was conducted in Bushenyi District to assess the public knowledge and attitude towards the use of herbal medicines. The study involved moving around the community and interviewing the locals of different age groups (18 years and above), and from different religious affiliations on whether they use traditional and local medicinal preparations or not. How they use these traditional herbal preparations, for which ailments and if these herbal medicines are effective as compared to the standard drugs. The study also involved finding out which ailments are commonly treated using the herbal remedies.

**Keywords:** Herbal Medicine, Bushenyi District, Attitude, Health Care

## Introduction

Herbal medicinal preparations can be mixtures of different fresh or dried materials that come from any part of a plant (Bent, 2008). These may include leaves, stems, flowers, roots, and seeds among other parts (Bent, 2008). Since time immemorial herbal medicines have been in use worldwide (Wiesner & Knöss, 2014). Herbal remedies have gained popularity in the Western countries as non-prescribed alternatives to conventional pharmaceuticals as they are deemed natural with less side effects (Gutteridge & Burns, 2013).

Herbal medicine use is believed to be the major form of healthcare for most communities most especially in sub-Saharan Africa (Magalaet al., 2017). While about 70 – 80% of the Ugandans still rely on traditional medicine and herbal remedies for their daily healthcare needs, it is believed that in some areas especially the rural and remote ones, this trend could be up to 90% compared to 80% reported world-wide by WHO as an estimate of the usage of traditional medicine in developing countries (Kamatenesi & Oryem-Origa, 2005).

In Uganda, it is believed that a higher section of the population which is up to 60% or more depend on traditional and herbal medicine. The drivers for this herbal medicine use could be the ease of accessibility, affordability, and sometimes influence by culture and family background (Bagole, 2016). In a study which was carried out in Wakiso district central Uganda, about one third of the population who participated in the study reported in a positive way when asked about their herbal medicine use (Bagole, 2016). This choice was reported to be mostly influenced by religion, family history, affordability of herbal medicines, inaccessibility and high cost of modern drugs plus poor attitude of traditional people towards modern drugs and health facilities (Magala et al., 2016). The above study was conducted to assess the extent and frequency of herbal medicine use among young people in the study area (Magalaet al, 2017).

In another study carried out among the Balamogi people in mid eastern Uganda about herbal medicine use, the larger percentage of medicinal plant species that are commonly used in that community were reported to belong to families Solonaceae, Asteraceae, Fabaceae and Euphorbiaceae (Tabuti et al., 2003).

According to Maundu and Tengs 2005, Warbugia ugandensis was one of the leading medicinal plants used medicinally in East Africa (Maundu & Tengs, 2005). Its bark is traditionally used to treat malaria, pain, cough, diarrhea, and sexual impotence (Kokwaro, 2009). This plant contains phytochemicals like alkaloids, terpenoids, flavonoids, phenols, saponins, tannins, carotenoids, and triterpenes and it is these diverse secondary metabolites that are responsible for its health restorative capacity (Ranade & Thiagarajan, 2015).

The leading indications for herbal medicines use include respiratory infections, cough medications, gastrointestinal disorders, urinary tract infections, plus malaria and fevers others. Important to note is that cough and cold are the most widely treated using two thirds of these herbal medicines (WHO, 2013). In a cross-sectional study carried out in Kabarole district western Uganda, AIDS outpatients were also reported to be using herbal medicine for the management of HIV/AIDS related illnesses (Langlois-Klassen, Kipp, Jhangri, & Rubaale, 2007).

The major drivers for the herbal medicine use include; the belief that herbal medicines are safe and do not have any toxic effects, easily accessibility and ready availability to both the lay person and the professionals (Gutteridge & Burns, 2013).

Medicinal plants are majorly harvested from the wild and degraded lowland areas in the morning from loamy soils, because in these conditions the aromatic oils are strongest and therefore increase potency of the herb. (Boadu & Asase, 2017).

The medicinal preparations (herbal medicines) are majorly prepared in form of infusions, decoctions, concoctions, powders, or as ash, while others may consist of juices and saps, sometimes compress are also used (Tabuti et al., 2012). The part that is most frequently used in herbal medicines is the leaf, followed by the stem and root (Tabuti et al., 2012). The leaves are commonly used since they are easily accessible and always available in large amounts.

The techniques used to obtain the extracts include but not limited to grinding and extraction, filtration. Traditional herbal formulations largely remain in form of powders, tinctures, aroma therapy, liquid preparations and pastes among others. (Musthaba et al., 2010). Some herbal medicines are first sun dried, pounded using motor and pestle and then ground using a local grinding stone. However, this method is unhygienic and wasteful as much material maybe lost during different stages of processing, in addition the other methods of extraction include chewing or pounding the plants to get juices while others are mixed with clay and sundried (Tabutiet al, 2003).

The routes of administration of herbal medicines majorly include oral route, nasal and rectal of which the oral route is the most commonly used route of administration (Boadu, A, 2017). Herbal medicines can also be mixed in bathing water and used for a bath or they may be used topically by applying them directly on the skin and in some instances powders are mixed in hot water and drunk as tea, these powders may also be mixed in jerry or some other things and applied directly on the body or pure powders may be licked. Boiling the medicinal plants and inhaling of the ensuing vapors to treat majorly respiratory infections and fevers is also employed (Tabutiet al, 2003).

## **Methods and study materials**

### **Study design**

The study was a descriptive cross sectional field study that employed both qualitative and quantitative methods to assess community knowledge and attitudes about herbal medicine use. This study design was deemed appropriate for this survey because the population was assessed over a short period of time.

### **Study setting**

The survey was conducted on respondents from their homesteads or workplaces. This kind of setting was selected because it was assumed that in such settings, the respondents would give the best information without any bias or external influence. The study area is located in Western Uganda, Bushenyi-Ishaka municipality. Its latitude in degrees, minutes, and seconds is 00° 29' 00" S and its longitude in degrees, minutes, and seconds is 30° 20' 00" E

### **Study population**

According to Western region Census report of 2014, which is the most recent, Nyakabirizi division was found to have a total population of 8,165, of which 4,204 were females and 3,961 being male. This population is believed to have increased slightly since the last census to around 10,000. The land area is 34.4 square kilometers.

### **Sample size determination**

The size of the sample for the study was determined using the Krejcie and Morgan Table as shown below, since the population was known.

Table 3.1  
*Table for Determining Sample Size of a Known Population*

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

*Note: N is Population Size; S is Sample Size* *Source: Krejcie & Morgan, 1970*

**Inclusion criteria**

All the people above the age of 18, both males and females were considered because they are believed to have substantial knowledge and exposure about the use of herbal remedies. Only those individuals who consented to participate in the study were interviewed. Also individuals who were in a vividly stable mental condition were considered.

**Exclusion criteria**

People below the age of 18 were considered unfit to participate in the study. Also people who were vividly in an altered mental state or those under the influence of alcohol, were excluded. Also, those people who refused to respond to certain questions after having given consent, were excluded.

**Sampling techniques**

The sampling method used was two stage cluster sampling. In this type of sampling, the first cluster was the four villages in Nyakabirizi Division (Kibaare, Mazinga, Rwenjuru and Ward I), in which the first stage sampling was done. The second stage sampling selected households in each of the first stage clusters. The starting households were randomly selected and subsequent households chosen following odd numbers. The rationale for this method was due to the fact that it was a community survey and the population was sparsely distributed over different villages. The above method was chosen because it saves resources during the data collection process.

## **Data collection procedure**

The data was collected with the use of a structured key informant questionnaire with mostly close ended questions in an interview format. The rationale for using this method was due to the fact that some participants were illiterate and therefore unable to fill the questionnaires on their own, plus issues of incomprehension of the questions resulting from language barrier.

## **Data analysis and presentation**

Data was organized and sorted in Microsoft Excel then analyzed using Statistical Package, STATAv15. Descriptive statistics were obtained for the different variables. Results were presented in tables and expressed as frequencies or percentages.

## **Ethical considerations**

The permission to carry out the research was sought from the Research and Ethics Committee (REC) of Kampala International University-Western Campus who provided the ethical approval. Informed consent was also obtained from the respondents facilitated by the consent form. Privacy and confidentiality was upheld during the course of the entire study. This was ensured by making sure that names were not used but only codes to conceal the identity of those who participated in the study. The area leaders were approached and permission was sought from them regarding the intended study in their area and its relevance. After permission was granted by the area leaders, the study was conducted in the pre-determined area. While some people declined to participate in the study or gave half information due to feelings of discomfort, they were assured that the study carried no substantial risk to them.

## **Discussion of results**

### **Characteristics of respondents**

The majority of the respondents were males, and the commonest age bracket was 25-34 years of age. However, older people who were above 45 years of age had much more knowledge regarding medicinal plant use, the reason for this could be that these people have used medicinal plants for long periods of time and hence the enormous knowledge they possess. On the other hand, the young generation had little knowledge and interest in traditional medicine use in general. This could be attributed to lack of enough exposure to these herbal medicines among the young population and lack of proper orientation about its relevance. This could lead to knowledge loss if nothing is done to change the attitude of the young generation towards herbal medicine use. And picking interest in traditional knowledge regarding herbal medicine use and also to preserve the good knowledge which is harbored by the old people in the community. Younger people may be influenced by technology and modern education which leaves them with little or no time to learn and practice ethno-medicinal knowledge that would be reserved for future use and generations. Also most of the information was obtained from the peasants and the seemingly uneducated people as compared to the educated and office employed respondents. This was attributed to the fact that the peasants have a great exposure to the use of herbal medicines which could be due to poverty and inaccessibility of modern drugs compared to their educated counterparts.

### **Diversity of medicinal plants**

The large percentage of medicinal plants which were documented in the study area showed that the area is rich in flora which is usually employed in the management of various disease conditions and an

enormous knowledge among the traditional people about medicinal plants and plant products in the local community. From the generated information it was concluded that the study area (Nyakabirizi division) a very good hub of herbal medicines used by the local communities, because all the mentioned herbal medicinal plants were available in the study area. This means that almost all the necessary herbal products can be accessed in the immediate locality within the study area. Most of the reported medicinal plants used in the area belonged to family Asteracea as having the largest number followed by Solanaceae and Euphorbiaceae among others.

### **Herbal medicinal plant parts, preparation and administration**

The most commonly uses plant parts were reported as being leaves, followed by roots and stems as the most commonly used plant parts in the area under study. This is probably because the leaves are easy to excess and are always available in abundance.

The utilization of mostly leaves in preparation of herbal remedies followed by roots and barks was reported as being a daily practice in many areas especial the rural and remote ones in Uganda as was reported in Mukono-central Uganda, Bushenyi-western Uganda, Mpigi and other countries like Kenya and Ethiopia (Tugume et al., 2016). The highpreference to use the leaves as opposed to other plant parts is due to the ease with which they can be obtained in abundance unlike other plant parts which are usually in small amounts and not even easy to get in large quantities. It was also established that the leaves are mostly used because they are considered to be more potent than other plant parts, and as well as their fast regeneration capacity.

Plant phytochemical constituentslike alkaloids, terpenoids, flavonoids, phenols, saponins, tannins, carotenoids, and triterpenesare attributed to the efficacy of the medicinal plants and their health restorative capacity (Ranade & Thiagarajan, 2015). The major reason as to why leaves are usually preferred to other plant parts is most likely due to the presence of active ingredients like tannins and other alkaloids.

However, as was observed, there is a clear cut connection between the part of the plant which is harvested and its impact on the plant from which it is harvested and the method of harvesting used. Harvesting the bark and or roots is dangerous and damages the plant from which harvesting is done, which makes such plant species vulnerable to overexploitation and extinction in the long runbecause debarking the whole stem or plant can destroy the plant since the protective gear of the plant will be removed and hence the plant's internal parts will be exposed to external conditions which can eventually destroy the plant and lead to its death.

On the other handit is not recommended to uproot the whole plantduring harvesting especially in case of herbs and shrubs, since this causes total destruction of the plant under use and in the long run the plant population reduces which may eventually lead to extinction of those species. Debarking and uprooting of medicinal plant species negatively affects the sustainability of the species being utilized.

Herbal medicinal remedies are usually prepared in form of decoctions, concoctions, infusions, ash or powders and others may consist of juices and saps. The part that is most frequently used in herbal medicines is the leaf, followed by the stem and root (Tabuti et al., 2012).

Decoctions, (both hot and cold) were reported as being themost commonly used methods in the preparation of herbal medicines in this study. Boiling was reported as being a very effective method used in extracting plant materials, this method helps to preserve the herbal preparations for a longer period compared to cold extraction. However, the challenge with this method is that it can destroy

some chemical constituents especially those that are heat labile like vitamin C. Despite the boiling, the method does not prolong the shelf life of the herbal preparations. For that reason the people tend to keep harvesting the plant materials since they have to keep preparing fresh concoctions now and then because the prepared materials are usually used for a short period of time. This puts the plant species under utilization under pressure which may lead to over exploitation and eventually extinction most especially for those rare species.

The routes of administration which is most commonly used for herbal remedies included oral where various herbal preparations are drunk, this was followed by topical, inhalation and nasal drops as the most common routes. There were other routes reported but which are rarely used like rectal and intra-vaginal.

### **Documentation of reported efficacy from medicinal plants**

In the recent times, there has been a tremendous change as regarding the utilization of herbal medicinal products not only in the third world countries but as well as in developed countries. About 50% of modern drugs on the market are plant derived or they have a plant component in them. At the same time, more than 25% of both prescription and non-prescription drugs originate from tropical plants majorly from tropical Africa. According to WHO, 80% of the world population use majorly herbal remedies and plant based products to meet their day today health care needs (Haq, 2004).

Medicinal plants are used either as a single herb, or a combination of different herbs as preventive, health promoting, and curative substances (D.U Press – M.O.H - Tanzania, 1991). The knowledge of healing properties of plant based products has been transmitted over to generations among different human communities. Active compounds in various plant parts play a role to bring about the biological effects of these plant products because of their chemical constituents (Silva & Fernandes Júnior, 2010).

In this particular study, the majority of the respondents believed in the healing power of medicinal plants and reported to have used them extensively and to have received the expected outcome from the use of these herbs. Regarding frequency of use, majority of the respondents stated that they use herbal medicinal plants whenever they feel unwell and use them primarily for curative purposes. However, a certain section of the community reported to be using the herbal remedies occasionally, intended for health promotion and disease prevention.

Some reports indicated achievement of the desired outcome after using the herbal medicinal plants among majority of the respondents.

Some medicinal plants were reported as being used to manage different ailments. The use of one plant or plant products to manage various conditions could be associated with the different phytochemical constituents that may be present in just a single plant or plant part, and also due to the fact that a single compound can have activity against various conditions or microorganisms and pathogens. In some other cases, various plant parts from different plant species were used singly or in combination to prepare a herbal remedy for use against either one or various ailments. This exhibited the synergistic effect resulting from the use of various plant combinations. However, this combination can also lead to toxic effects. An example of a herbal combined preparation is combining Karituusi (*Eucalyptus globulus*) and Omuyembe (*Mangifera indica*) leaves, collectively to be used against cough.

In herbal medicine preparations, different plants or plant parts are usually mixed together to get a single concoction unlike modern drugs where isolated compounds are always used, and it has been confirmed that crude herbal extracts always possess higher in-vivo or in-vitro efficacy as compared to isolates

compounds when given at the same doses (Rasoanaivo et al., 2011). The combining of different herbal remedies or different plant species in a single concoction helps to increase the efficacy, reduce the development of resistance and also reduce the chances of toxicity (Fouquier & Guedj, 2015)

However, some medicinal preparations were just prepared from a single plant part or a single plant species. For such preparations where a single medicinal plant species was used, the plant was believed to be non-toxic, palatable and effective against specific condition against which it was used.

The majority of the plant species which were documented in the study area have also been reported by other researchers as being used medicinally in Uganda or other African countries in the management of the same or different conditions. This was in comparison with other studies which documented herbal medicinal use in various parts of Africa

The findings from this study were in agreement with the findings of Kakudidi et al. (2000) who carried out a study around Kibale national park in western Uganda to find out the conditions which were being treated using some selected plant species (Kakudidi et al., 2000).

In their study, various plant species were documented and *Vernonia amygdalina* was reported to be the most commonly used plant in the management of malaria and *Bidens pilosa* for the management of fresh wounds). Tugume et al. (2016) also endorses the use of *Aloe vera* to treat malaria and wounds, *Allium sativum* for hypertension and *Ocimum gratissimum* for gastrointestinal disturbances, in a study carried out around Mabira Central Forest Reserve, Uganda (Tugume et al., 2016).

### **Documentation of the safety profile**

Most of the people who use traditional and herbal medicines tend to believe that these medicines are safe and devoid of any side effects simply because they are natural. However documented evidence suggests that these herbal remedies are equally toxic and some can even be fatal when the wrong doses are used (Ernst, 2005). The fact that a product is not synthetic and it's from a natural source does not guarantee the safety of such a product, this was according to Carol A. Newall, the British Co-author of *Herbal Medicine: A Guide for Health Care Professionals*. According to this scientist, the product being from a natural source does not mean it's safe and the fact that some plant species have been used since time immemorial does not necessarily mean they are safe. Although there is limited evidence to suggest the adverse and toxic effects associated with the use of natural products as compared to enormous documentation of adverse effects associated with the use of conventional drugs, herbal remedies can also be very toxic and even fatal when used wrongly or in wrong amounts (Haq, 2004).

Even though there is little evidence to suggest that there is drug interactions between herbal remedies and modern drugs, there are a number of reported cases about herbal-drug interactions documented in literature. The National Toxicology Program in the USA is currently conducting studies on the potential of herb-herb and herb-drug interactions and the clinical responses of some sensitive populations such as pregnant women, the young, the developing fetus, and the elderly who use herbal products in combination with modern drugs (Haq, 2004). While health practitioners gain experience in using herbal medicines in the management of various conditions, other side effects and drug-herbal interactions come into play. Therefore it is always necessary to inform or consult qualified medical personnel in case someone is not very certain about the drugs and herbal remedies he/she intends to use.

In this study, the decision on the dosage of the herbal medicine formulation used was self-determined in the majority of respondents, with only a few of them following instructions from a practitioner/herbalist. Also, of all the respondents who reported their simultaneous use with modern or conventional



prescription or non-prescription medicine, only 19% did prior checking or consulting whether or not it was safe to mix herbs and conventional medicines. This therefore shows that a huge percentage are at a risk of experiencing drug-herb interactions which could potentially be harmful to their health.

Majority of users did not report occurrence or experiencing of any unwanted effects, however, 19.1% reported to have experienced some unpleasant effects. The commonest reported unwanted effects were diarrhea (35.9%) and dizziness (17%). Other unwanted effects included over sweating, headache, nausea and vomiting, abdominal discomfort, dry skin, bad breath and constipation. However, the fewer reported side effects do not necessarily mean that the herbal medicines used in this community are inherently safe. The mode of preparation and administration also determines the safety of a given product. This is because a product may be safe orally but very toxic by other routes. Therefore until more studies are carried out and scientific evidence put in place, the information about safety profile regarding the use of these herbal medicines cannot be made conclusive.

### Conclusions

From the findings of the study, Nyakabirizi division harbors a variety of medicinal plant species which are used as remedies for the management of several ailments among the local communities. Such plants and their medicinal properties play a very important role especially among the local communities and to the poor people who may find it difficult to access or afford modern medical care services. The knowledge about the use of herbal remedies for the management of various disease conditions among the local communities is still part of their daily life practice and culture and this calls for preservation of flora and this indigenous knowledge of herbal medicine use by documenting it before it gets lost when the people with such knowledge happen to die without passing it to the next generation.

Most of the knowledge regarding herbal medicine use is preserved by the old people of the community in their heads. This puts such precious knowledge at the verge of extinction in case these people die without passing this knowledge to the next generation.

### Recommendations

The study recommended that more extensive studies should be carried out in the same or larger community to find out which medicinal plants are used specifically and for which specific ailments.

More scientific research should be carried out to validate the traditional claims about the safety and efficacy of some of these herbal remedies.

The knowledge about the use of herbal medicines should be preserved by documentation to prevent it from being lost in case someone dies with such knowledge.

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