

Prevalence of Herbal Medicine Use in Nyando Sub-County, Kisumu County, Kenya

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Abstract: World Health Organization estimates that more than 80% of the world population use herbal medicine for some aspect of primary health care. It is reported that up to 80% of the population in Africa consult with traditional health practitioners. In Kenya, 90% of the population is reported to have used herbal medicine at least once for various health conditions. A study which was conducted in the neighboring Kisii County, Gucha Sub-County, reported that 97.6% of the respondents had used herbal medicine at least once in a lifetime. Kisumu County has over 100 registered herbalists practicing in different Sub-Counties. Although the study could not access any official documentation on herbal medicine use in Nyando Sub-County, personal communication with health practitioners in the Sub-County showed that herbal medicine is widely used amongst patients seeking care in health facilities; though the true magnitude is not known. Most previous studies on use of herbal medicine especially in the Nyanza Region, where Nyando Sub-County is located, have focused on herbal practitioners but missed the consumers of herbal services. Most of the studies were conducted in hospital settings and herbal clinics but not in household set ups that can reveal the true prevalence of use of herbal medicine by household members. The main objective of this study was to determine the prevalence of use of herbal medicine in Nyando Sub-County, Kisumu County. This was a cross-sectional household study in which information on herbal medicine was sought from the household heads on prevalence of herbal medicine use. A two-stage cluster sampling was used to select 148 households from a target population of 30,439 households. Tool for data collection was a structured questionnaire which was pretested. Data was analyzed using descriptive statistics such as frequencies, proportions and percentages. The study found out that 143(97%) of the household heads had used herbal medicine at least once in a lifetime; 104 (70%) of the households had at least a member in the household who had used herbal medicine within the last 12 months; about one quarter of household heads, 39 (26%), reported that at least one of their household members was using herbal medicine at the time of the interview. The study concludes that the prevalence of herbal medicine use is high with a lifetime period prevalence of 97% and a twelve months period prevalence of 70%. The study recommends further household surveys that involve all household members delineated by age groups, sex and population sub groups. The high prevalence of herbal medicine use noted in this study sets a baseline data for further qualitative studies that will guide medical interventions

Keywords: Herbal Medicine, Herbalist, Household, Prevalence

1. Introduction

In the past, modern science had considered methods of traditional knowledge as primitive (WHO, 2005). Consequently, doctors and health personnel have in most cases continued to shun traditional practitioners despite their contribution to meeting the basic health care needs of the population, especially the rural population (WHO, 2005). Many practitioners of conventional medicine view the increasing recognition of traditional health systems as a failure by modern medicine to satisfy the health care needs of the society while some even feel threatened by a system that they view as unscientific and beyond rational categorization (Sofowora, 1996).

World Health organization estimates that about 80% of the world population depends on herbal medicine (WHO, 2013). In spite of great advances observed in modern medicine in recent years, it was reported that a large segment of the world population still depends on herbal medicine as the preferred form of health care (Iwu & Gbodossou, 2001). The wide use of herbal medicine has been reported in Germany where close to 70% of physicians have prescribed over 600 varieties of plant-based medicines (Baker, 2016). It is estimated that about 25% of all modern medicines are directly or indirectly derived from plants (Cragg & Newman, 2001). It has also been documented that the United Kingdom has a historical tradition of using herbal medicine (Nissen, 2010).

A study on the prevalence and patterns of herbal medicine

use among adults in the United States reported that more than one- third of the respondents use herbal supplements (Rashrash, 2017). Studies conducted in the countries of Cambodia, Thailand and Vietnam which assessed a 12 months period prevalence amongst both rural and urban communities seeking care for chronic conditions and mental disorders in health facilities reported that 76.7% of respondents used herbal medicine to manage those conditions in the last twelve months (Peltzer *et al.*, 2016).

In Africa, it is estimated that 80% of the continent's population relies on herbal medicine for their basic health needs (Mayori, 2013a). Herbal medicine is widely used for primary health care in Africa and other developing countries, due to its cultural disposition (Matheka & Demayo, 2013). African nations widely rely on traditional medicines for the cure and treatment of tropical ailments (Maroyi, 2013b). To advance the continental efforts towards equitable access to medical products, 85% of African nations are now engaged in large scale cultivation of medicinal and aromatic plants (WHO, 2022).

In Uganda, some traditional healers have been integrated into their national health systems (WHO, 2005). A descriptive cross-sectional study conducted in Moroto District in Uganda, even though 60-80% of Ugandans visit traditional healers as their first line of health care showed that the prevalence of use of traditional medicine among adults was 68% (Logiel *et al.*, 2021). Another study conducted on the prevalence and factors associated with use of herbal medicine among women attending an infertility

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clinic in Uganda documented that 76.2% of respondents used herbal medicine for infertility treatment (Kaadaaga *et al.*, 2014).

At least 90% of the Kenyan population has used herbal medicine at least once for various health conditions (Njoroge & Kibunga, 2007). Wide use of traditional medicine by different communities in Kenya has been reported in ethnobotanical surveys (Jacob *et al.*, 2004; Kareru *et al.*, 2007). A survey conducted in 2019 to find out where Kenyans seek medical treatment revealed that the leading counties in the proportion of the population that visit herbalists for care were Kakamega (46.2%), Nakuru (44.6%), Nyeri (43.1%), Nandi (39.4%) and Kiambu at 38.0% (Atellah, 2019). The prevalence were however lower than what has been reported in other study set ups in Kenya. This survey by Atellah (2019) interviewed herbalists and not the households using herbal medicine.

In the neighboring Kisii County, a study that focused on the prevalence and patterns of herbal medicine use among children aged 0-12 years admitted to Kisii level 5 hospital found out that nearly two out of every three children were on herbal therapy (Otieno, 2010). Another study which was set in Gucha Sub-County, Kisii County (Ondicho, 2015), that interviewed those who sought care from herbalists or herbal clinics during three-month period from April to July 2011, reported that 97.6% of the respondents had used herbal medicine at least once in their lifetime. These studies did not assess the prevalence in the whole population since they focused either on children or adults; and they did not document prevalence at the household level where the true magnitude can be reflected.

Kisumu County has over 100 registered herbalists practicing in different Sub-Counties (Maina, 2013). A study conducted in Kisumu East Sub-County, a neighboring Sub-County to Nyando, identified 44 plant species that are predominantly used by herbalists in the Sub-County (Mailu *et al.*, 2020). Although the study could not access any official documentation on herbal medicine use in Nyando Sub-County, personal communication with health practitioners in the Sub-County show that use of herbal medicine is common amongst patients seeking care in health facilities. However, the prevalence of use of herbal medicine in this Sub-County has not been established by any study; hence this study will be conducted in selected households in Nyando Sub-County to assess the prevalence of use of herbal medicine. Understanding the prevalence of use of herbal medicine is important as it sets baseline information that will guide further qualitative and more analytical studies on herbal medicine use.

Kenya Government's Policy on Herbal Medicine Use

The Ministry of Health recognizes the contribution of herbal medicine in the management of various health conditions and the Health Act no. 21 of 2017 directed that herbal medicine be integrated in the formal health care systems (MOH-GOK, 2017). The health act established a regulatory body to regulate the use of herbal medicine. The regulatory body was given the mandate to institute measures for documenting and mapping Traditional and Alternative Medicine (TAM); approve levies charged on TAM; develop guidelines for a

system of referral from TAM practitioners to conventional health facilities; set minimum standards for practice; register and issue licenses to TAM practitioners. The Health Laws (amendment) act, no. 5 of 2019 recognized traditional medicine as a health product.

2. Methods

Study design

The study was a descriptive cross-sectional study design where both the independent and dependent variables were measured in a defined population at one particular time. Studies have shown that this design has a strong external validity hence can be generalized due to the large size of the study area (Mugenda and Mugenda, 2003)

Study Area

The study was conducted in Nyando Sub-County which is one of the six Sub-Counties in Kisumu County. The Sub-County borders Nyakach Sub-County to the East, Muhoroni Sub-County to the North and Kisumu East Sub-County to the West and has its headquarters at Awasi, which is located 30 kilometers East of Kisumu City. The Sub-County covers an area of 413.2 square kilometers. The population of Nyando Sub-County is 172,402 people with a population density of 417 persons per square kilometer (KNBS, 2019). The Sub-County is served by a total of 29 health facilities which include: 7dispensaries (Level II), 17 health centers (Level III) and 5 hospitals (Level IV). No official documentation exist on prevalence of herbal medicine use in Nyando Sub-County, though personal communication with health practitioners in the Sub-County showed that herbal medicine is widely used amongst patients seeking care in health facilities. Wide use of herbal medicine may have implications on morbidity patterns in Nyando Sub-County.

Study population

The primary study population comprised the household heads of Nyando Sub-County during the study period in May 2019. The target population was 30,439 household heads in Nyando.

Inclusion criteria

All household heads, 18 years and above, who were residing in the chosen clusters within the study area and gave informed consent were recruited for the study.

Exclusion criteria

Household heads that were not available at the time of data collection with no any other adult present were not interviewed.

Sample size determination

The appropriate sample size was calculated based on WHO's Guidelines on Community Survey (WHO, 2004) for calculating the sample size for a household survey where households are selected by cluster sampling. A sample size of 148 households was calculated based on the formula.

$$n = [4(r) (1-r) (f) (1.1)] / [(e^2) (p) (nh)]$$

Sampling procedure

Nyando Sub-County has 30,439 households with an average household size of 5(KNBS, 2019). To select the households,

a two-stage cluster sampling with probability proportional to size (PPS) was used. Cluster sampling has been documented to reduce cost per interview and increase efficiency (Kerry & Bland, 1998). Cluster sampling also helps to avoid having to compile exhaustive lists of every individual in the population (Mugenda and Mugenda, 2003). This sampling method has been recommended for a sub-county level household survey (WHO, 2004).

The first stage of this sampling involved dividing the primary population into clusters. With the help of three research assistants, the researcher could interview 24 households in a day. The calculated sample size, 148 households, was divided by 24 to get approximately 6 clusters (6 sub-locations) which were to be selected. Systematic sampling was then used to select the 6 clusters. Systematic sampling is where every n^{th} cluster in the study area was picked, guided by the sampling interval and the cumulative household size. The sampling interval was obtained by dividing the target population by the number of clusters.

The second stage involved selecting 148 households from the chosen clusters. The clusters were sub-divided into segments guided by a cluster segmentation scheme (WHO, 2004). One segment was selected from each cluster by simple random sampling. A list of all households in each of the segments selected was compiled and all eligible household heads in the segments selected were interviewed.

Data Collection Methods

The instrument that was used to gather information in this study was a structured questionnaire which was organized as per the objectives of the study. It was interview administered to avoid any problems related to comprehension of the language. All eligible household heads in the segments selected were interviewed. The variables that were sought included use of herbal medicine including lifetime use, use in the last twelve months and use of herbal medicine at the time of data collection. Household heads were also asked whether they can consider using herbal medicine if a particular health condition persists for more than three months.

Pre-testing of the Instrument

The questionnaire was pre-tested prior to data collection. Pre-testing was conducted in Kisumu Central Sub-County. This was done on 15 (10%) households, based on the calculated sample size of 148 households.

Validity and reliability

The researcher assessed the content validity by consulting supervisors, research experts, and health practitioners in the main stream health sector. This was to ensure that the measuring instrument provided adequate coverage of the topic under study with respect to the study concepts, concept dimensions and indicators. Subsequently, research assistants were appropriately trained, and questionnaires translated into the local language with back translation to test accuracy of the tools. A measuring instrument is reliable if it provides constant results (Kothari, 2014). During data analysis, internal reliability analysis for factors influencing use of herbal medicine was conducted through factor analysis using SPSS and interpreted at Cronbach's alpha

coefficient >0.70 . Cronbach's alpha reliability coefficient of 0.7 was acceptable as the measure of internal consistency reliability (George and Mallery, 2003). This method was preferred because it eliminated chance error by differing test conditions (Mugenda and Mugenda, 2003). Internal reliability test was conducted on participant's perceptions on health hazards of herbal medicine use (Cronbach's alpha coefficient = 0.731, factors = 5).

Data management and analysis

The process of data collection was closely supervised by the researcher. Supervision involved periodic review of questionnaires for completeness and consistency. The data collected from questionnaires was assembled by keying into SPSS version 20.0 Database. Data was kept in principal investigator's laptop and protected with the aid of a password. Backups were made by keeping the information in flash disks and the researcher's email account. Data was analyzed quantitatively. Quantitative data on prevalence of herbal medicine use and whether households can consider using herbal medicine if a particular health condition persists for more than three months were analyzed using frequencies, proportions and percentages. Data was presented in tables and pie charts.

Ethical Consideration

Approval to conduct this study was sought and obtained from Maseno University School of Graduate Studies. Ethical Clearance was sought and obtained from Maseno University Ethical Review Committee (Ref: MSU/DRPI/MUERC/00662/19). Research authorization was sought and obtained from the National Commission of Science, Technology and Innovation (Ref: NACOSTI/P/19/40070/28872). Other relevant authorizations were also sought and obtained from the Kisumu County Commissioner, County Director of Education and the County Government of Kisumu. Proposed respondents were given information on the purpose and method of the research. Only those who were willing to participate were included in the study. Only information relevant to the study was gathered and confidentiality adequately maintained. Written informed consent was sought from study participants. In addition, they were assured of the confidentiality of the information that they provided. The respondents were again told of their right to voluntary participation, codes were used to maintain anonymity of all participants and no personal identifiers were used in the final report.

3. Results

Prevalence of herbal medicine use

Information was sought on lifetime use of herbal medicine; use of herbal medicine within the past 12 months, and; current use of herbal medicine. The findings are presented in table 4.2. An overwhelming majority, 143 (97%), reported that they had ever used herbal medicine. Regarding the inquiry on use of use of herbal medicine by household members within the last 12 months, 104 (70%) of the households indicated that they had at least a member in the household who had used herbal medicine. About one quarter of household heads, 39 (26%), reported that there were aware of at least a household member who was using herbal

medicine at the time of the interview.

Table 4.1: Use of herbal medicine by households in Nyando Sub-county, May 2019 (n=148)

Herbal medicine use	Proportion		
	Yes, n (%)	No, n (%)	Total, n (%)
Lifetime use by household heads(n=148)	143(97%)	5(3%)	148(100%)
Use in the last 12 months by households(n=148)	104(70%)	44(30%)	148(100%)
Current use by households(n=148)	39(26%)	109(74%)	148(100%)

Persistence of a particular health condition

A slight majority, 89 (60%), of household heads interviewed reported that their households can consider using herbal medicine if a particular health condition persists for more than three months. Fifteen percent reported that they cannot consider using herbal medicine even if a particular health condition persists for more than three months while 37 (25%) were not sure whether they can use herbal medicine or not for such persistent conditions.

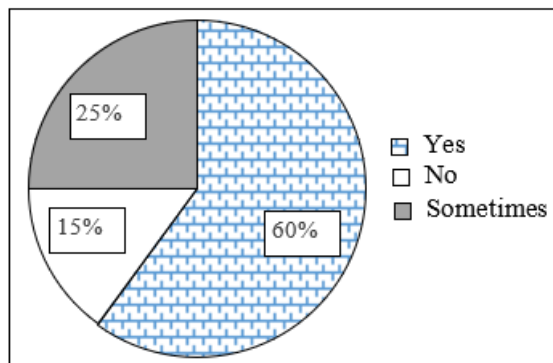


Figure 4.1: Households that can consider using herbal medicine if a particular health condition persists for more than three months (n=148)

4. Discussion

The findings of this study indicated that 97% of the household heads reported that they had used herbal medicine as a treatment to some health condition in their lifetime. This finding is consistent with a previous study which was set in Gucha Sub County (Ondicho, 2015), a neighboring sub-county, that interviewed those who sought care from herbalists in herbal clinics during three-month period, from April to July 2011, and reported that 97.6% of the respondents had used herbal medicine in their lifetime. The findings of the study, however, is slightly higher than a similar household study in Mwimbi Division in Tharaka Nithi County (Nzuki, 2016) in which the use of herbal medicine amongst children aged below five years was assessed and showed that 89.4% of the children had been treated with herbal medicine. High prevalence of use of herbal medicine has been reported in a World Health Organization report (WHO, 2013) that showed that 80% of the world population depends on herbal medicine for some aspects of primary health care. The high prevalence noted in the current study was also reported in another study which revealed that not less than 90% of Kenyans have used herbal medicine at least once in a lifetime (Njoroge & Kibunga,

2007). This high prevalence of herbal medicine use could be partly be due reports that show that many Kenyans believe in the effectiveness of herbal medicine even when they can access conventional medicine (Kigen *et al.*, 2013). Wide use traditional medicine by different communities in Kenya has also been reported in ethno botanical surveys (Jacobet *et al.*, 2004; Kareru *et al.*, 2007; Njoroge & Kibunga, 2007).

The findings of this study indicated that 70% of the households reported that they had used herbal medicine at least once within the past 12 months. It agrees with a local study that assessed the use of herbal medicine within the past one month amongst children 0-12 years admitted at Kisii level 5 hospitals which reported that 70% had been treated with herbal medicine (Otieno, 2010). This study could not access any local studies that had assessed a 12-month period prevalence. However, the finding is consistent with a study conducted in the countries of Cambodia, Thailand and Vietnam which assessed a 12 months period prevalence amongst both rural and urban communities seeking care for chronic conditions and mental disorders in health facilities in which it was shown that of 76.7% reported that they used herbal medicine to manage those conditions in the last twelve months (Peltzer *et al.*, 2016). Such high prevalence of use of herbal medicine may also have implications on morbidity patterns, since reports have shown that some herbal medicines may be "contaminated" and may lead to more opportunistic infections and other serious health complications (Kajilwa, 2018). The high prevalence noted in this study, compared to most previous studies, may be due to differences in the study set-ups. This study was based at the household level where a higher prevalence could be reflected unlike most of the previous studies that were either hospital based or conducted in herbal clinics. The high prevalence sets a baseline for further qualitative studies that will guide public health interventions on herbal medicine use in the study area. This high prevalence of use of herbal medicine is of public health importance in many health systems. In the light of the findings, it would be important to involve the herbal medicine practitioners in disease control strategies in the community since a great number of participants consult with them. The Kenyan government's health act no. 21 of 2017 had proposed that herbal medicine be integrated with conventional medicine. This should be implemented in the light of these findings.

5. Study Limitations

The findings of this study were based on information obtained by self-reporting by respondents; hence the researcher could not easily verify what was reported. Self-reported data is susceptible to recall and reporting biases. Recall bias is a where respondents report events occurring outside the recall period or respondents have forgotten whatever happened. The accuracy of recall is influenced by memory decay. To reduce recall bias, a shorter recall period of twelve months was used. Under-reporting or distorting information could arise due to reluctance of the respondents to disclose some facts out of guilt. Assuring the respondents of confidentiality was used to minimize under-reporting or distortion of information.

6. Strength of this Study

The principal researcher was from Nyando Sub-County and understood the people, their culture and language. The study documented three types of prevalence: life time prevalence, 12 months period prevalence and point prevalence.

7. Conclusions and Recommendations

The results from the study show that herbal medicine was widely used among households in Nyando Sub-County. The study concludes that both the lifetime period prevalence (97%) and 12 months period prevalence (70%) were high. The study recommends that it is important to tap onto the positive qualities of herbal practitioners in disease prevention and control strategies in the community since a great number of participants consult them and widely use herbal medicine. The study recommends further household surveys that involve all household members delineated by age groups, sex and population sub groups.

Appendix

GOK- Government of Kenya

DHIS- District Health Information System

KDHS- Kenya Demographic and Health Survey

KEMRI- Kenya Medical Research Institute

KNBS- Kenya National Bureau of Statistics

MOH- Ministry of Health

MUERC- Maseno University Ethical Review Committee

NATHEPA- National Traditional and Herbal Practitioners Association

SPSS- Statistical Packages for Social Sciences

TAM- Traditional and Alternative Medicine

WHO- World Health Organization

Author Contribution

The author was responsible for conception of the problem, design, collection, analysis, interpretation of data and drafting the final report.

Funding

The study was funded by the principal researcher.

Availability of data and materials

Data sets generated from this study will be available.

Conflict of interests

The author declares no conflict of interest.

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