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Use of Complementary and Alternative Medicine Interventions in the Management of HIV/AIDS in Kisii County, Kenya: A Qualitative Study of Traditional Healers

Meshack O. Onyambu, PhD[1*], Gladys N. Mokua, PhD[1], Geoffrey M. Maroko, PhD[2], Augustus O. Nyakundi, PhD[3]

[1]Department of Pharmacognosy and Pharmaceutical Chemistry, School of Pharmacy, Kenyatta University, Kenya
[2]Department of Linguistics and Languages, School of Humanities and Social Sciences, Machakos University, Machakos, Kenya
[3]Department of Communications, School of Humanities and Social sciences, Chuka university, Chuka, Kenya

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ABSTRACT

Background: The use of traditional medicine among people living with HIV/AIDS in Kisii County Kenya is high. There is need for more knowledge on how these therapies are concomitantly used with conventional antiretroviral therapy in the county.

Objective: The current study aimed at exploring the traditional healers' experiences in managing HIV/AIDS using alternative and complementary interventions.

Setting: The study was carried out in Kisii County Kenya where HIV/AIDS prevalence is relatively high and anti-retroviral therapy (ART) coverage low compared to the national average.

Design and participants: The study took a qualitative approach specifically phenomenological where 12 registered traditional healers were purposively sampled from a registered total of 22 in the county. Two focus group discussions of six participants each were held in addition to follow up interviews for each of the participants. Data was analyzed qualitatively by taking significant statements, textural descriptions and transcripts from participant experiences in managing HIV/AIDS.

Results: Traditional healers dispensed herbal remedies to boost immunity, treat antiretroviral therapy side effects and opportunistic infections such as gastritis, diarrhea and sexually transmitted infections. Counselling, prayer and faith helped eliminate stigma and enhance the will to live among patients. Among the remedies dispensed were *Aloe vera*, *Carissa edulis, Leonotis nepetifolia, Maesa lanceolate* and *Prunus africanus*.

Conclusion: Concomitant use of ART with herbal and nutritional therapy may contribute to immune boosting, reduced opportunistic infections and side effects related to antiretroviral therapy. Counselling, spiritual guidance, prayer and faith may be applied to reduce HIV/AIDS related stigma and improve the will to live.

Keywords: Traditional healers, Alternative interventions, HIV/AIDS management, Complementary medicine

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Corresponding Author:
Onyambu Meshack O, Department of Pharmacognosy and Pharmaceutical Chemistry, School of Pharmacy, Kenyatta University, Kenya. Email: onyambu.meshack@ku.ac.ke

Introduction

Traditional medicine is the sum total of knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures used to maintain health, as well as to prevent, diagnose, improve or treat physical and mental illnesses[1]. As at 2018, 88% of WHO member states acknowledged using traditional and or complementary medicines in their primary healthcare systems. Among the commonly used traditional approaches was acupuncture, herbal medicines, indigenous traditional medicines, spiritualism, prayer, traditional midwifery and therapeutic massage[1].

In Kenya, between 2009 and 2012, over 120 herbalists from across the country had reported using at least 3 herbal remedies in their practice with high success rates in therapeutic claims against various diseases[2]. The diseases included malaria, typhoid, pneumonia, diarrhea, arthritis, sexually transmitted infections, toothaches, helminthiasis and HIV/AIDS related infections[2]. Preference for these diseases is high in Kenya and the larger sub-Saharan Africa but HIV/AIDS has attracted more prevention and management efforts because it has no cure[3,4]. Because of the widespread use of traditional medicines in Kenya over the years, the new constitution of Kenya 2010 and the Health Act 2017 outlined some principles for its integration into the mainstream healthcare system [3,4]. In Kisii, one of the counties with high HIV/AIDS prevalence, the county government integrated development plan shows that there are over 20 registered traditional practitioners playing an important role in primary healthcare[5].

Previous studies have revealed that the Kisii community believe in the use of traditional medicine as part of the solution to diseases afflicting them[6]. However, little has been done to explore the indigenous experiences associated with traditional healers who offer alternative and complementary therapies concomitantly used with Anti-retroviral therapy (ART) by People Living with HIV (PLHIV). The traditional healers' understanding of HIV/AIDS and how they dispense alternative therapies, knowledge on effects of concomitant use with ART are not well-researched and documented. Since traditional medicine has not been mainstreamed to the current healthcare system even with the rampant use, in-depth understanding of the principles, theories and beliefs underlying its use from the healers' perspective will aid in formulation of policies on concomitant use thereby informing integration. Moreover, the risk of information loss from one generation to the next is high because majority of the surviving traditional healers are old and may die without sharing knowledge. This underscored the need for more knowledge on complementary and alternative medicine interventions used in the management of HIV/AIDS in Kisii County hence the purpose of this study. Information from this study will also help improve outcomes of HIV/AIDS management in the county.

Materials and methods

Research Site

The study was carried out in Kisii County in the Western part of Kenya, from October 2018 to August 2019. This study entailed a situational analysis of intervention measures in the management of HIV/AIDS prevalence in Kisii County. Kisii is one of the 47 counties in Kenya and is ranked number 10 in HIV/AIDS prevalence in the country[7]. In addition, the County is ranked among the lowest in ART coverage at 34% compared to the national average of 81%[7]. A pilot

study revealed that Abagusii (native people in Kisii County) believed in medicine men and in the spirits of their ancestors. There was evidence that some of the PLHIV visited traditional health practitioners and used traditional medicines in the management of HIV/AIDS. Some used the traditional medicines concomitantly with ART, while others used it as an alternative. Some of the reasons given for shunning conventional facilities which offered ART included stigma and discrimination[6]. Kisii county lies between latitude 30° and 10° S and longitude 35°38' and 35° East. The County covers a total area of 1,317.5 km^2 and is divided into nine (9) Sub-Counties namely Bobasi, Bomachoge Borabu, Bonchari, South Mugirango, Kitutu Chache North, Kitutu Chache South, Nyaribari Masaba, Nyaribari Chache and Bomachoge Chache.

Participants

The researchers targeted participants who had shared knowledge and experiences in the management of patients using traditional medical approaches. Phenomenological orientation therefore underpinned this study whereby essential meaning of participant lived experiences were captured[8]. Additionally, variation in their individual characteristics such as age, level of education, type of traditional practice, duration in the practice, practice specialty and means through which they obtained knowledge of practices was considered during sampling.

Due to the secrecy and mysticism associated with traditional medical practices, two key informants registered with the Kenyan Ministry of Culture (body accrediting traditional healers) and well known to the researchers were identified purposively and interviewed as a pilot study. Preliminary analysis of the interview results helped researchers to identify major themes emerging from the data.

The two practitioners were then requested to guide the researchers in identifying their colleagues who were registered and reputable in the practice through snowball sampling. Among 13 identified traditional healers, only one refused to be interviewed citing secrecy associated with his practice. In total 12 traditional medical practitioners participated in the study. This study was therefore characterized by a small sample size because of information richness and variety of participants[8]. In phenomenological studies sample size fewer than 10 is allowed if the authors feel data has reached saturation point[8]. With a total population of 20 registered traditional healers in Kisii County, 12 was deemed sufficiently representative sample because they provided enough information showing patterns, categories and varieties of the subject under study to the point where a sense of closure was attained.

Purposive sampling was deemed best suited for this study because the study was interested in participants knowledgeable about traditional healing and the plants used. Those willing and able to communicate their experiences and opinions in an articulate, expressive, and reflective manner were also targeted.

Data Collection and analysis

The study utilized qualitative data collection methods specifically in-depth face-to-face semi structured interviews and focus group discussions. Authors used previous knowledge about traditional medicines such as the meaning, secrecy and associated mysticism to formulate a preliminary interview guide and question route for FGDs. After pilot testing the interview guide, more relevant questions were formulated based on preliminary results obtained. Subsequently, two focus group discussions constituting six members

each were carried out. The focus group discussions lasted between 90-120 minutes. Due to the secrecy and mysticism associated with Kisii traditional medicine, it was felt that suspicion among healers would influence disclosure of all information during FGDs. This necessitated follow up individual interviews for each of the participants in focus group discussions (FGD). Individual face to face interviews lasting between 30-45 minutes presented an opportunity for exploring participant thoughts, feelings and beliefs about a particular topic and delving deeply into personal and sometimes sensitive issues. An additional focus group discussion was finally carried to confirm that data saturation had been reached. Participants were allowed to speak freely about their own experiences, perceptions, thoughts and feelings about PLHIV. As the interview unfolded, the researchers focused on major and subordinate questions emerging from the conversation where information on participants' inception into the practice, major healing practices, knowledge of HIV/AIDS, diagnosis, management, remedies used concomitantly with ART, dosage and related side effects was collected. Similar topics were covered in focus group discussions. This gave the researchers an opportunity to obtain a close and intimate familiarization with the traditional healers and their practices in addition to examining their thoughts and feelings. The face-to-face interviews and FGDs were conducted in herbal clinics where participants practiced and the local language Ekegusii was used. Literature review to ascertain the scientific validity of the plant remedies used by herbalists to manage HIV/AIDS was done by searching scientific databases such as Hinari, PubMed and Elsevier. The revelation of medicinal plant remedies used in the management of HIV/AIDS further inspired literature review to ascertain scientific validation. The use of in-depth individual interviews, FGDs and literature review for medicinal plants identified by herbalists as remedies for HIV/AIDS was key in attaining triangulation of data. (Patton)[9] views triangulation as a good test for validity through the convergence of information from different sources. Data was collected and analyzed by a team of four researchers with PhD qualifications drawn from both health and social sciences. The team members were born and bred in Kisii County hence had knowledge of the research area and great understanding of traditional traits of Kisii community, how they lived and interacted among each other in relation to communication and oral literature. The audio recorded data from interviews and FGDs of traditional healers was transcribed verbatim and translated to English by the third and fourth authors. After focus group discussions and follow-up interviews, the researchers also shared their field notes and thrashed any discrepancies to attain validity. The final analysis involved identification of themes as per the participants' interview and FGD guides. The major themes included participants' demographic data, knowledge of HIV/AIDS, diagnosis, management remedies used concomitantly with ART and related side effects. All authors participated in summarizing the contents of each theme into simple descriptive narratives and tables. Significant statements were taken from the transcripts to describe participant experiences in managing HIV/AIDS according to similarity. These were used to write textural descriptions. The textural descriptions were then used to write the essence of the experiences in text passages that the reader could understand.

Ethical considerations

The proposal for this study, data collection instruments and the informed consent form

were reviewed and approved by a registered institutional ethical review committee (Approval Number CU/IERC/NCST/18/53). The study was then issued with a research permit (NACOSTI/P/18/50245/24190) by the National Commission for Science, Technology & Innovation. At the County level, necessary approvals were given by the Ministry of Education, Kisii County Commissioner and Kisii County Director of Medical Services. Before data collection, all respondents were fully debriefed about the purpose of the study and asked to sign

Table 1. Participants' demographic characteristics

Informant ID	Age	Years of practice	Education level	Type of CAM practiced	How one became a traditional healer	Specialization
1	Above 50	Over 30	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	From old relative practitioner (Chinderia)	Gastrointestinal problems
2	Above 50	Over 30	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	Ancestors through visitation, conversations via dreams and spirits	Wounds
3	Above 50	Over 30	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	From ancestors via vision, conversations and dreams	Heart
4	Above 50	Over 30	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	Inheritance from grandmother, mentorship by assisting and observing	Typhoid
5	Above 50	Over 30	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	Via ancestors through dreams, conversations and visions,	Bones, ligaments/ arthritis
6	Above 50	Over 30	Primary certificate, training in herbal medicine	Herbalism, prayer and Faith	Ancestors-mentored by father	Respiratory diseases
7	Above 50	Over 30	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	mentored by relative	STIs
8	Above 50	Over 45	Formal education up to PhD. degree	Herbalism, prayer and faith, acupuncture, Traditional Chinese medicine, Massage	From ancestors, mentored by grandmother, got formal training	Reproductive health
9	Above 50	Over 35	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	mentored by relative through observation and interest	Epilepsy
10	Below 50	9	Ordinary diploma	herbalism, prayer and faith, Massage	Mentored by a trainer of traditional medicines	Typhoid
11	Above 50	Over 35	Primary certificate, training in herbal medicine	Herbalism, indigenous traditional spirituality	Ancestors-mentored by father	Malaria infections
12	Above 50	Over 35	Primary certificate, training in herbal medicine	Herbalism/ prayer and faith	Mentored by a relative and got visions from God	Head surgery/Trephination

an informed consent form. They were assured of anonymity and confidentiality.

Results

Sociodemographic characteristics of the respondents

The study found that experience was a major factor in the management of HIV/AIDS using Complementary and Alternative Medicine, and treatments took a multipronged approach. The attendant factors included the age of the healer, duration in the practice, type of practice and the inception of the practitioner into the practice. Out of the 12 traditional healers interviewed, 10 were men above 50 years of age. The 10 male traditional healers had no formal education but had participated in trainings on herbal medicine that aided them in their practices. Table 1 presents a summary of the participant age, number of years in the practice, type of practice, inception into the practice and their traditional medical specialization.

HIV/AIDS diagnosis

Apart from relying on test results from conventional facilities, respondents explained that they diagnosed HIV/AIDS through physical examination and interrogation of the patient's eating and drinking habits. In addition, environmental factors such as seasons played a major role in disease epidemiology. All these factors were key considerations to diagnosis and treatment as attested by a respondent in text 1 below.

Text 1

"Most HIV/AIDS patients have internal wounds and ulcers which end up killing them when they don't follow instructions on therapy. This is why our diagnosis is also based on what they eat and what they don't like eating. For instance, there is a case of a patient I received from Kenyatta National Hospital who had been discharged for home-based care on request by relatives. It was a case of HIV/AIDS and he had ulcers. I administered therapy and told him not to take alcohol. He recovered well but after sometime he went back to drinking alcohol. Unfortunately, he didn't make it. Most people living with HIV are also prone to fever and malaria during the cold months between May and September. During July-August the time of maize maturity, pollen which results from the maturing maize cause an upsurge of respiratory diseases".

Approaches used in traditional management of HIV/AIDS concomitantly with ART

Respondents used a multi-pronged approach to manage HIV/AIDS. Herbal remedies, nutritional supplementation, counseling and spiritual interventions were used concomitantly with antiretroviral therapy as explained by one of the respondents in text 2.

Text 2

"HIV/AIDS is a complex of many diseases. I therefore use several combined herbal formulations which mostly treat sexually transmitted infections. I use counseling and spiritual approach to manage incidences of stigma. I use a combination of up to eight different plants. In cases where the patient presents with diarrhea, millet porridge and fresh milk can stop it. Other approaches include treating the patient with love, affection and encouragement, encouraging closer family ties, need for the patient to feel valued and useful, provision of healthy diet, treating opportunistic infections with natural remedies, provision of pleasant environment, using selected oils for massages, sunbathing, encouraging daily exercises, being positive and advise for patients to use protection during sexual intercourse".

Respondents believed that a number of people living with HIV/AIDS die of stigma rather than the effects of disease. They also revealed that those who suffered from stigma were not likely to reveal their HIV status. Counselling was therefore proposed as a key deterrent to stigma as expounded by a respondent in text 3.

Text 3

"Because of stigma, most patients present with stress and therefore need close psychosocial support. I have managed three HIV/AIDS clients for 9, 12 and 18 years respectively who had initially refused to take any therapy because of stigma and denial. Counselling is very effective in combating stigma along with the herbal medicines. I therefore spend a lot of time talking to my patients. I encourage them to talk, avoid self-pity and not to be left alone most of the time. This approach along with prayers has greatly improved my patient's health outcomes".

Traditional healers explained that combining nutrition with antiretroviral therapy resulted in better outcomes for their HIV/AIDS patients as exemplified in text 4.

Text 4

"I give most of my patients especially those who have wasted and lost so much weight a combination of herbals then recommend they slaughter a goat and eat gastrointestinal contents. This helps them to gradually regain their body muscles and weight. I recommend other foods such as meat, eggs, milk, fish (particularly mud fish) and vegetable diet such as spider flower and millet to be introduced as they will expedite regaining of strength, blood and immunity".

Common infections afflicting People living with HIV (PLHIV) and management using natural remedies

Respondents explained that herbal medicines formed key therapy in HIV/AIDS management. Plant parts such as leaves, roots, stems, barks, flowers and fruits are administered in liquids, powders, solids, oils, semi-solids and steam baths for various ailments as per text 5.

Text 5

"As traditional healers, we manage several opportunistic infections in our patients. Many patients present with abdominal pains caused by gastritis, worms, typhoid, malaria, indigestion, intestinal obstruction and appendicitis. In such cases, the remedies include Zingiber officinale (ginger), Psidium guajava (guava)and Aloe vera (aloes). Anaemia is managed by foods rich in iron and vitamins such as liver, fish, vegetables such as amaranth, beans and lentils, fruits etc. Asthma is managed by using herbs such as Euphobia hirta, eucalyptus, Caricap papaya (pawpaw) and datura stramonium. Bad breath is managed by chewing neem or eucalyptus twigs while bed sores are managed using honey ointments. Bronchitis, coughs and colds are managed by using lemon grass, artemisia, garlic, onion, eucalyptus, lemon fruits, ginger, avocado and oranges. Oral thrush is managed by lemon, artemisia, garlic, mangoes, and tomatoes while Candida is managed by vinegar, lemon juice, lemon grass, mango, garlic, artemsia, green tea, neem and carrots. Ear infections are managed by onions and neem while fever is treated depending on the cause such as malaria, pneumonia, typhoid, meningitis or measles. Sometimes we use tamarind and lemon grass when the cause is not apparent. Gastritis is managed by Moringa, guava, aloe vera, sweet potato and datura stramonium.

Respondents listed opportunistic infections that their patients present with and how they

Table 2. Medicinal plants used for management of HIV/AIDS and related infections in Kisii County

S. No	Botanical name (local in bracket)	Family	How Plant is used	Part used	Application form	Documented use in literature	References
1	*Opuntia ficus-indica* (L.) Mill. *(Ebao)*	Cactaceae	In combination with seven others for HIV/AIDS	Leaves	Decoction	lowering blood sugar, wound healing, antioxidant, anti-inflammatory	10, 11
2	*Aloe secundiflora* Engl. *(Omogaka)*	Liliaceae	In combination with seven others for HIV/AIDS	leaves	Decoction	wound healing, treating burns antiviral, antibacterial, antifungal, anti-inflammatory, antitumor and antioxidant properties, Candida	12
3	*Carissa edulis* (Forssk.) Vahl *(omonyangateti)*	Apocynacy	In combination with seven others for HIV/AIDS	Roots	Decoction, boiling	chest pains, rheumatism, headache, gonorrhea, syphilis, rabies and as a diuretic	13
4	*Triumfetta macrophylla* K.S chum *(Ekemiso)*	Tilliaceae	In combination with seven others for HIV/AIDS	Roots		Not found	Not found
5	*Clerodendrum myricoides* (Hochst.) R.Br. ex Vatke *(Omonyasese)*	Lamiaceae	In combination with seven others for HIV/AIDS	Roots, leaves	Decoction	Gonorrhea, TB, malaria, swellings in the body, wounds	14
6	*Leonotis nepetifolia* (L.) R.Br. *(Risibi ribariri)*	Lamiaceae	In combination with seven others for HIV/AIDS	Roots, leaves	Decoction	Tonic, dermatological problems, anti-inflammatory, pain and wound healing, antioxidant, antimicrobial	15
7	*Maesa acuminatissima* Mer r. *(omoterere)*	Myrsinaceae	In combination with seven others for HIV/AIDS	Roots	Decoction	Antibacterial, antiviral, hepatitis, sore throat and cholera	16
8	*Prunus africana* (Hook.f.) Kalkman *(Omoiri)*	Rosaceae	In combination with seven others for HIV/AIDS	Bark	Decoction	Enlarged prostate. fever, malaria, wounds, stomach ache, kidney diseases, gonorrhea, antiviral, antimicrobial, antifungal	17
9	*Sambucus canadensis* L. *(omoelida)*	Caprifoliaceae	In combination with seven others for HIV/AIDS	Bark	Herbal tea, decoction	Upper respiratory infections influenza, bronchitis or sinusitis. Fevers, Anemia, laxative, wounds, cuts, burns, swollen bruises and fluid retention, tumors. Inflammation, colds & flu, antiviral	18
10	*Artemisia annua* L. (Egeosi)	Asteraceae	Malaria	leaves	Decoction	Malaria, analgesic	19
11	*Lantana camara* L. *(riuga rikoara)*	Verbanaceae	Coughs, ulcers, respirator, problems, wound healing	leaves	Decoction	Whooping cough, pulmonary problems, eczema. sprains. Rheumatism, influenza, mumps, mouth ulcers, antibacterial	20
12	*Basella alba* L. *(enderema)*	Bacellaceae	Anemia, stomachache	leaves	Decoction	Laxatives, conjunctivitis, stomachache, constipation, wounds, rubefacient	21
13	*Moringa oleifera* Lam. **(**Moringa)	Moringaceae	Combination with three others for HIV, Anemia, diarhoea, kidney	Leaves	Decoction	Antioxidants, anti-inflammatory, blood cleansing, anticancer, antimicrobial	22, 23
14	*Urtica dioica* L. *(rise)*	Lamiaceae	Combination of three for HIV, UTIs, gout, prostate health	Leaves	Decoction	Joints, diuretic, urinary tract infections, kidney stones, antimicrobial	24
15	*Azadirachta indica* A.Juss. *(omoarobaini)*	Meliaceae	Combination with others for HIV bad breath	Leaves	Decoction	Dermatological disorders, UTIs, cough, Asma, worms, dental infections, antimalarial, antioxidant, anticancer	25
16	*Vernonia amygdalina* Delile	Asterarcea	Fever, malaria, diarhoeae, hepatitis	leaves	Decoction	antihelminthic	26
17	*Tylosema fassoglensis* (Schweinf.) Torre & Hillc.	Fabacae	Antiviral, immunomudulant, diarhoeaea	leaves	Decoction	GIT infections, anemia, pneumonia, UTIs	27

Table 2. Medicinal plants used for management of HIV/AIDS and related infections in Kisii County

S. No	Botanical name (local in bracket)	Family	How Plant is used	Part used	Application form	Documented use in literature	References
18	*Ficus thonningii* Blume	Moraceae	Diarhoea, respiratory and disorders and urinary tract infections	Roots, leaves	Decoction	UTIs, Gonorhea, respiratory infections, mental disorders	[28]
19	*Warbugia ugandensis (esoko)*	Canellaceae	GIT infections, antibacterial, antifungal, analgesic	Bark	Decoction	Antibaterial, antifungal	[29]
20	*Zingiber officinale* Roscoe (Ginger)	Zingiberaceae	Antbacterial, antifungal, anti-inflammatory, anticancer	Roots	Decoction	GIT disorders, nausea, anti-inflammatory, migraine, pain	[30]
21	*Psidium guajava* L. *(ribera)*	Myrtaceae	Antidiarrhea, for pain, cough, oral ulcers	Fruit, leave	Decoction	Antimicrobial, antidiarrheal, antioxidant, hepatoprotective, anti plasmodia	[31]
22	*Eucalyptus saligna* Sm. *(omoringamu)*	Myrtaceae	Muscle pains, cough, bad breath	leaves	Decoction	Respiratory illnesses, sore throat, burns, antiviral	[32]
23	*Carica papaya* L. *(ripaipai)*	Caricaceae	Warts, constipation, eczema, glandular tumors.	Fruit, root, bark	Decoction	Antiviral, antifungal, antibacterial	[33]
24	*Datura stramonium* L.*(etobo)*	Solanaceae	Anti-inflammatory, analgesic, stomach upset	Leave, flower, seed	Decoction	Ulcers, Wounds, imflammation, bronchitis, asthma, toothache	[34]
25	*Elaeodendron buchananii* (L oes.) Loes. *(rikanda)*	Celasteraceae	Diarhoea, syphilis, coughs, fever	Bark	Decoction	UTIs	[35]
26	*Alium sativum* (Egetunguo saumu)	Amaryllidaceae	Antibacterial, antiviral, antifungal, immune booster, antitumor, antioxidant	Root, stems tubers	Decoction	anti-tumor and anti-microbial effects,	[36]
27	*Cymbopogon citratus* (DC.) Stapf *(Lemongrass)*	Poaceae	Antibacterial, antifungal, antidiarrheal, antiinflammatory, anticancer, antidiabetic	leaves	Decoction	Antibacterial, antidiarhoea, antifungal, anti-inflammatory, antioxidant antimalarial, antimycobaterial	[37]
28	*Ipomea batatas (Rirabwani)*	Convolvulaceae	Diabetes, hypertension, constipation, arthritis, meningitis, kidney problems, anti-inflammatory	Root, leaves	Decoction	Anticancer, antidiabetic, antiinflammatory	[38]
29	*Camelia sinensis(Echae)*	Theacae	Antioxidant, lower cholesterol,	leaves	Decoction	Antioxidant, antiinflammatory	[39]
30	*Caffea arabica* (ekawa)	Rubiaceae	Diuretic, stimulant	Seeds, leaves	Decoction	Flue, anemia, edema, fever, cardiotonic, cough, diarhoea	[40]
31	*Racinus communis* (Castor oil plant)	Euphobiaceae	Analgesic, anti-inflammatory, syphilis,	root	Decoction	constipation, abdominal disoders, free radical scavenger, antinflammatory	[41]
32	*Hibiscus rosa-sinensis* L.	Malvaceae	Coughs, painful menstruation, STIs	Flowers, back	Decoction	Flue, cough, stomach pain, antidiarhoea,	[42]
33	*Cannabis sativa* L.*(Enyasore)*	Cannabaceae	Pain relief, nausea, immune booster, emotional and mood regulation	leaves	Decoction	Chronic pain, analgesic, nausea, vomiting, HIV/AIDS	[43, 44]
34	*Euphobia hirta*	Euphobiaceae	Opportinistic infections, Fever, diarhoea, respiratory problems	Stem, leaves	Decoction	Respiratory disoders, gonorhoea, antitumor, digestive disorders	[45]
35	*Trema orientalis* (L.) Blume *(Omonyia)*	Ulmacea	Coughs, sore throats, gonorhoea, antidote to general poisoning, asthmah, bronchitis	Leaves and bark	Decoction	Diabetes mellitus, Malaria, respiratory diseases, Gonorhea	[46]

manage using herbal remedies. The information is summarized table 2.

Discussion

Our findings suggest that practices such as spiritualism, counselling, prayer and faith were prescribed for use concomitantly with antiretroviral therapy. These practices form part of the Kisii culture passed on by ancestral traditional medical practitioners to the current practitioners. The practice of passing traditional medical knowledge (known as *chinderia*) in local language fits well with the WHO definition of indigenous traditional medicines as the sum total of knowledge and practices whether explicable or not, handed down orally or in writing from generation to generation and used in diagnosing, preventing or eliminating physical, mental and social diseases[1]. According to WHO, these practices along with herbalism were found to be very common among 88% of WHO member states and therefore contributed greatly to primary healthcare globally [1].

Respondents acknowledged that spiritualism along with counselling, whether from a religious or ancestral point of view played a major role in their practice and general patient well-being in addition to the herbal remedies used. Spirituality is defined as a system of belief or religious practice based on supposed communication with the spirits of the dead especially through mediums[47]. The mediums in this case were ancestors otherwise referred to us *chisokoro* in the local dialect. Those who subscribed to religion consider spirituality from the biblical, prayer and faith or their religious perspective. According to Foglio[48], religion and spirituality form the basis of meaning and purpose for many people. Serving a whole person in physical, emotional, social and spiritual sense helps people find meaning and acceptance in the midst of suffering and chronic illnesses. This is in agreement with the traditional practitioners' accounts, that use of spiritualism enabled HIV/AIDS patients and those with chronic diseases accept the illness and be at peace with their lives. Scientific evidence shows that sick people who subscribe to a form of spiritualism live prolonged lives, cope better with illness, life stresses and enhance their recovery from illness and surgery[49,50,51.] Christina[47] reinforces the traditional practitioners' prescription of spirituality and counselling by stating that 60-90% of patient visits to primary care are related to stress and, meditation can relieve stress related illnesses such as chronic pain, high blood pressure, headache and irritable bowel syndrome.

Our findings suggest that all traditional healers used herbal remedies to manage HIV/AIDS and the remedies were dispensed in single or combination therapy. However, many of the herbs used were not officially registered with the Pharmacy and Poisons Board (body that ensures quality for medicinal products in Kenya). Much as this may have posed quality challenges, literature search showed that there is scientific and ethnomedical evidence of efficacy for the herbal remedies used. Many of the plants had been used before and had *in-vivo* and or *in-vitro* activity against the infections listed in table 2.

In our findings, some herbal remedies are used concomitantly with antiretroviral therapy to manage side effects. Studies show that managements of antiretroviral therapy side effects remain a challenge in resource limited settings especially Africa and majority of HIV/AIDS patients rely heavily on traditional herbal medicines [52, 53, 54]. Our findings also suggest that other remedies are used as alternatives in the management of HIV/AIDS. This would be in agreement with studies which show that the

percentage of people accessing conventional ART in Eastern and Southern Africa ranges between 52% -78% in spite of high HIV/AIDS preference[55]. A study by Cameron in 36 low and middle-income countries reported conventional drugs being way beyond reach for huge sections of the populations[54]. Moreover, the global increase in the use of traditional medicine has been attributed to the rise in chronic and non-communicable diseases, their accessibility and affordability[56,57].

Our study corroborates with other studies in Africa where people living with HIV/AIDS use herbal medicines and nutritional health products along with antiretroviral therapy[53]. The South African Development Community (SADC) comprising of 14 member states approved the use of *Hypoxis hemerocallidea* (African potato) and *Sutherlandia frutescens* (Sutherland) for use with ART[58]. In Uganda, high preference (37%) for traditional herbal medicines was reported among patients on highly active antiretroviral therapy [54,59]. Other countries where traditional medicines have been used concomitantly with ART are Mozambique and Nigeria [60, 61]. Some of the HIV/AIDS related illnesses in which herbal remedies have been used with good outcomes include dermatological disorders, nausea, depression, insomnia, immunity and general body weaknesses[54,60,61].

Because HIV/AIDS weakens the body's immune system by destroying white blood cells that fight disease, immune boosting is a popular management strategy among traditional healers as revealed. Moreover, majority of herbal remedies mentioned by the respondents in the study (table 2) are good immune boosters. The anecdotal evidence given by respondents relates well with scientific and ethnomedical evidence that the herbal remedies can manage viral, fungal, bacterial and parasitic infections [18, 22, 23, 24, 29, 35 & 36]. These agents are the cause of opportunistic infections in HIV/AIDS patients.

Our findings suggest that respondents prescribed traditional medicines for complementary use with conventional antiretroviral therapy. However, in some cases the remedies formed an alternative for patients who were not on ART due to stigma.

Based on the WHO classification of complementary and alternative medical therapies, the traditional management of HIV/AIDS in Kisii county has a three-pronged approach, namely: biologically based therapies, mind body intervention and manipulative body-based interventions[62]. Herbal remedies, food and nutritional supplements account for the majority of biologically based therapies. The evidence base on their activity against various infections and immune boosting properties is immense (table 2). According to the National Center for Complementary and Alternative Medicine, manipulative and body-based therapies such as massage can improve circulation, enhance functioning of the immune and circulatory system and maintain high functioning of the muscles[63]. As confirmed by anecdotal evidence from our study, mind body interventions such as meditation, spiritualism, counseling prayer and faith have been associated with better outcomes in migraine headaches, general pain, muscular dysfunction and stroke[64].

The World Health Organization postulates that traditional medicine may be used together with conventional medicine or as an alternative to conventional medicine[62]. With antiretroviral therapy being premised on aspects of treatment as prevention, pre-exposure and post-exposure prophylaxis[55,] the concomitant use with traditional medicine as revealed by respondents in this study implies a milestone in integration

and complementarity though not official. Further, the study confirms the known theoretical and philosophical basis for use of traditional therapies. These therapies enhance the body's ability to self-heal, relatedness or harmony of mind, body and spirit, the holistic and individualized approach to healing[62].

Conclusion and recommendation

Healthcare stakeholders and policy makers should be sensitized on complementary and alternative interventions concomitantly used with antiretroviral therapy. Our results suggest that herbal and nutritional therapy are commonly dispensed by traditional healers to PLHIV to boost their immunity, manage opportunistic infections and side effects related to antiretroviral therapy. In addition, counseling, spiritual guidance, prayer and faith, form major prescriptions to reduce HIV/AIDS related stigma and improve the will to live. There is therefore need for a policy guideline to mainstream concomitant use of complementary medicine and antiretroviral therapy.

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Declaration of conflict of interest

The authors declare that there is no conflict of interest whatsoever in the study

References

1. WHO (2019), WHO global report on traditional and complementary medicine 2019, Geneva.

2. Onyambu MO, Gikonyo NK, Nyambaka HN and Thoithi GN (2019) A review of trends in herbal drugs standardization, regulation and integration to the national healthcare systems in Kenya and the globe. International journal of Pharmacognosy and Chinese medicine Vol. 3 (2)

3. *Kenya health act (2017) No. 21 of 2017* HealthActNo.21of2017.pdf (kenyalaw.org) retrieved 20th December 2019

4. *Constitution of Kenya (2010),* National council for law reporting ConstitutionofKenya-2010.pdf (museums.or.ke) retrieved 20th December 2019

5. *County integrated development plan (2018-2022)* Kisii county government ;2018-2022 Kisii County CIDP.pdf (kippra.or.ke) retrieved 20th December 2019

6. Maroko, G.M., Mokua, G.N., Nyakundi, A.O. (2020). A Conceptual Analysis of Metaphors Engendering HIV and AIDS-Related Stigma and Discrimination in Kisii County, Kenya. Language Circle 14 (2): 137-147.

7. *HIV estimates (2018),* Ministry of health Kenya www.nacc.or.ke

8. Moser, A. & Korstjens, I. (2018), Practical guidelines to qualitative research part 3: sampling, data collection &analysis. European journal of general practice 24;1, 9-18

9. Parton, M.Q. (1999) Enhancing the quality and credibility of qualitative analysis, Health services research 34:5 part II

10. Butera, D.; Tesoriere, L.; di Gaudio, F.; Bongiorno, A.; Allegra, M.; Pintaudi, A.M.; Kohen, R.;Livrea, M.A (2002) Antioxidant activities of sicilian prickly pear (Opuntia ficus indica) fruit extracts and reducing properties of its betalains: Betanin and indicaxanthin. J. Agric. Food Chem. 2002,50, 6895–6901.

11. Kuti, J.O (2004) Antioxidant compounds from four Opuntia cactus pear fruit varieties. Food Chem. 2004, 85, 527–533.

12. Msoffe, P.L.M. & Mbilu, Z.M. (2009) The efficacy of crude extract of Aloe secundiflora on Candida albicans. Afr J. Tradit Complement. Altern Med 6 (4): 592-595.

13. Teshome Nedi, Negussu Mekonnen, Kelbessa urga (2004) Diuretic effects of the crude extracts of Carissa edulis in rats. Journal of ethnopharmacology 95 (1) 57-61

14. Yalemtsehay M, Teferra W, Gebremichael G and Yemana T (2011-2014) Exploring medicinal plants for better health; Antiplasmodial properties of Clerodendrum myricoides and Dodonaea angustifolia. Exploring traditional medicine, college of natural and computational sciences, addis ababa university (2011-2014)

15. Sobolewska, D., Pasko, P., Galanty, A., Makowska-Was, J., Padlo, K., Wasilak,W (2012).Preliminary phytochemical and biological screening of methanolic and acetone extracts from Leonotis nepetifolia (L.) R.Br.J.Med. Plants Res.6, 4582–4585.

16. Okemo O Paul, Harsh palbais, Jorge M Vivanco (2003) invitro activities of Maesa lanceolate extracts against fungal plant Pathogens. Fitoterapia. 2003 Apr;74(3):312-6.

17. Bii CC, Korir R, Rugutt J & Mutai C. (2010). The potential use of Prunus africana for the control, treatment and management of commonfungal and bacterial infections. Journal of Medicinal Plants Research 4 (11).

18. Charlebois D (2007) Elderberry as a medicinal plant. Issues in new plants and uses. ASHS press, Alexandria VA.

19. WHO (2006) world health organization monograph on good agricultural and collection practices (GACP) for Artemisia annua (l), WHO Geneva.

20. Sanjeeb Kalita, Gaurav Kumar, Loganathan karthk (2012) A review on medicinal properties of Lantana camara (Linn) Research J Pharm and tech 5(6). June 2012.

21. Rosham A Chikari, Naveen Kumar HN, shruthi SD (2012) A review on medicinal importance of Basella alba L. International journal of pharmaceutical sciences and drug research 2012: 4(2): 110-114.

22. Abdul Razis AF, Ibrahim MD, Kntayya SB (2014) Health benefits of Moringa oleifera: Asian pacific journal of Cancer prevention 15(20) 8571-6

23. Armadoa, Armarillis S, Sofia R, Lorena Z, Eddy L, Federico NC (1992) Pharmacologic properties of Moringa oleifera: Screening for antispasmodic, anti-inflammatory and diuretic activity. Journal of ethnopharmacology 36(3) 233-237

24. Dorota Kregiel, Ewelina Pauliowska & Hubert Antolak (2018) Urtica spp. Ordinary plants with extraordinary properties. Molecules Jul: 23(7) 1664

25. Mohammad A. Alzohiry (2016) Therapeutic role of Azadiracta indica (Neem) and their active constituents in disease prevention and treatment. Evidence based complementary and alternative medicine. HIndawi publishing corporation.

26. Ifeoluwa T Oyeyemi, Akimbiyi A, Akinlabi, Adenike Adewumi, Ambibola O. Aleshinloye, Oyetunde T. Oyeyemi (2018) Vernonia amygdala; a forkloric herb with antihelminthic properties. Beni-suef University Journal of basic and applied sciences 7(1) 43-49.

27. Onyango JA, Josia o. Omolo, Alice WNjue, Joseph W Matofari (2012) antimicrobial activity of the root extracts of Tylosema fassoglensis sweinf (Caesalpinaceae) scince journal of microbiology. Science journal publications volume 2012

28. Rachel Dangerembizi, Kennedy H Erlwanger, Davison Moyo & Eliton Chivandi (2013) Phytochemistry, Pharmacology and ethnomedical uses of Ficus thonningii (Moraceae), a review. Afr J Tradit Complement Altern Med. 10(2):203-12.

29. Wube, A.A., Bucar, F. Gibbons, S. A ,K.,Rattray,L.,Croft,S.L.,2010.Antiprotozoal activity of drimane and coloratane sesquiterpenes towards Trypanosoma brucei rhodesiense and Plasmodium falciparum in vitro.Phytother.Res.24,1468–1472.

30. Jalal Bayati Zadeh and Nasroallal Moradikor (2014) Physiological and Pharmaceutical effects of ginger (Zingiber officinale) as a valuable medicinal plant; European journal of experimental biology 4(1):87-90

31. Rosa martha perez, Gutierrez Sylvia Mitchell, Rosario vargas solis (2008) Psidium guajava . a review of its traditional uses, phytochemistry and pharmacology. Journal of ethnopharmacology 117 (2208) 1-7.

32. Silva, J., Abebew, W., Duarte, V.C., Machando, M.L., & Matos, F.J. (2003). Analgesic and anti-inflammatory effects of essential oils from eucalyptus. J ethnopharmacology 89(2-3) 27-83

33. Tarum Viji, Yash Prasher (2015) a review on medicinal properties of carica papaya linn; Asian pacific journal of tropical diseases 5 (1) 1-6

34. Bhakta Prasad Gaire, Lalita Subedi (2013) a review on the Pharmacological and toxicological aspects of Datura stramonium L, Journal of integrative medicine. 11(2) 73-79

35. Omwenga E.O. A .Hensel, A. Shitandi, F.M. Goycoolea (2015) Ethnobotanical survey of traditionally used medicinal plants for infections of skin, gastrointestinal tract, urinary tract and the oral cavity in Borabu sub-county, Nyamira county, Kenya. Journal of EthnopharmacolOgy176(2015)508–514

36. Leyla Bayan, Peir Hossain Kouliv and and Ali Gorji (2014) Garlic: a review of potential therapeutic effects; Avicenna J Phytomed 4 (1) 1-4

37. Gagan Shah, Richa shri, vivek Panchal, Nrenda sharma, Bharpur Sing & asman (2011) Scientific basis for the therapeutic use of Cymbopogon citratus stapf (lemon gras). Journal of advanced pharmaceutical technology & research. 2 (1) 3-8

38. MohanraJ R, Sivasankurs (2014) sweet potatoe (Ipomea batatas L) , a valuable medicinal food, a review. Med food 17 (7) 733-41

39. Sharangi AB (2009) Medicinal and therapeutic potentialities of tea (Camelia sinensis L)A review food research international 42(529-535)

40. Eva Brigitta Patay, Timea benefik Nora Papp (2016) phytochemical overview and medicinal importance of coffea species from past until now. Asian journal of tropical medicine 9(12) 1127-1135

41. Waseem Mohammed Abdul, Nahid H Hajrah1, Jamal S.M. Sabir, Saleh M Al-Garni, Meshaal J Sabir, Saleh A Kabli, Kulvinder Singh Saini, Roop Singh Bora (2018) Therapeutic role of Ricinus communis L. and its bioactive compounds in disease prevention and treatment. Asian pacific journal of tropical medicine 11 (3) 177-185

42. Jadhav VM,RM Thora T, VJ Kadam and NS Sathe (2009) Traditional medicinal uses of Hibiscus rosa-sinensis. Journal of Pharmacol Research 2(8):1220-1222

43. Mary Barner Bridgeman and Daniel T Abazia (2017) medicinal cannabis History, pharmacology and implications for the acute care setting: Pharmacy and therapeutics 42(3) 180-188

44. Natasha R. Ryz, David J Remillard and Ethan B. Russo (2017) Cannabis roots: a traditional therapy with future Potential for treating inflammation and pain Cannabis and cannabinoids research, vol. 2.1

45. Kumar Sunil, Rashmi Malhotra & Dinesh Kumar (2010) Euphobia Hirta: Its chemistry, traditional and medicinal uses and pharmacological activities. Pharmacognosy Review 4(7) 58-61

46. Michael Buerno Adinortey, Isaack Galyuon & Nicholas Oteng Asamoah (2013) Trema orientalis Linn Blume: A potential for prospecting for drugs for various uses. Pharmacognosy review 7(13) 67-72

47. Christina M Puchalski (2001) the role of spirituality in healthcare (BUMC proceedings 201; 14: 352-357

48. Foglio JP, Brody H (1998) Religion, faith and family medicine. J Fam. Prac. 27:473-474

49. Strawbridge WJ, Cohen RD, Sharma SJ and Kaplan GA (1997). Frequent attendance at religious services and mortality over 28 years. AM J Public health 87: 957-961

50. Yates JW, Chalmer BJ, St James P, Follansbee M, MCkegney FP (1981) Religion in Patients with advanced cancer. Med. Pediatr Oncol 9:121-128

51. Harris RC, Dew MA,Lee a, Amaya M, Buches L, Reetz D, Coleman C (1995) The role of religion in heart transplant recipients long-term health and well-being. Journal of religion & health 34 (1) 17-32.

52. Cameron, A., Even, M., Ross-Degnan, D., Bail, D., & Laing, R. (2008). Medicine prices availability and affordability in 36 developing middle income countries. A secondary analysis-Geneva WHO 2008

53. Fairfield KM, Eisenberg DM, Davis RB, Libman H, Phillips RS (1998) Patterns of use, expenditures, and perceived efficacy of complementary and alternative therapies in HIV-infected patients. Arch Intern Med. 158:2257–2264.

54. Babb DA, Pemba L, Seatlanyane P, Charalambous S, Curchyard G, Grant AD (2004). Use of traditional medicine

in the era of antiretroviral therapy: experience from South Africa. eJIAS 2004, MedGenMed. 2004;6:B10640. [eJIAS. 2004 Jul 11;1(1):B10640]. [Google Scholar]

55. UNAIDS 2010

56. Chan (2013). Speech by WHO director general Dr. Margaret Chan at the international conference on traditional medicine for South East Asian countries. New Delhi India, 12-15 February 2013

57. Lewal, O.A., Banjo A.D. (2007). A survey of usage of arthropods in traditional medicine in south west Nigeria. J. Entomol. 4, 104-112.

58. Southern African Development Community (SADC), (2003) Ministerial Consultative meeting on Nutrition and HIV/AIDS. Johannesburg, South Africa; Jan 20–21, 2003.

59. Betty Namuddu, Joan N kalyango and paul Waako (2011) Prevalence and factors associated with traditional herbal medicine use among patients on highly active antiretroviral therapy in Uganda. BMC public health: 11(1) 855

60. Fleming J (1995) Mozambican healers join government in fight against AIDS. J Int Assoc Physicians AIDS Care. 1:32.

61. Peters EJ, Immananagha KK, Essien OE, Ekott JU (2004). Traditional healers' practices and the spread of HIV/AIDS in south eastern Nigeria. Trop Doct. 34:79–82.

62. Syed Amin Tabish (2008) Complementary& alternative healthcare: Is it evidence-based? International journal of health sciences, Qassim University, 2(1) V-IX

63. National Center for Complementary and Alternative Medicine. "Manipulative and Body-Based Practices: An Overview." http://nccam.nih.gov/health/backgrounds/manipulative.htm (accessed sep, 2020).

64. Helane Wahbeh, Siegward-M Elsas, Barry S. Oken (2008), Mind body interventions, applications in neurology; Neurology journal June 2008;70 (24)

65. Nyakundi, A.O., Maroko, G.M., Mokua, G.N. & Onyambu, M.O. (2019). Communication strategies in the management of HIV and Aids in kisii county, kenya: successes and gaps. International Journal of Communication Research Vol 9, (4): 339-350.

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