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ORIGINAL RESEARCH

"We Cure Sickle Cell Disease with Herbs": Perspectives of Herbal Medicine Practitioners Treating Sickle Cell Disease in the Acholi Sub-Region

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Background: Sickle cell disease (SCD) is a genetic blood disorder that results in the deformation of red blood cells under low oxygen conditions, causing vaso-occlusive crises and severe complications. While hydroxyurea has been introduced as a treatment for SCD, herbal medicines remain widely used across Africa. Northern Uganda has a high SCD prevalence of 20.5%, yet limited research exists on alternative treatment options within local communities. This study aimed to explore the perspectives of herbal medicine practitioners in the Acholi sub-region.

Methods: We conducted in-depth interviews between October and December 2024 involving 24 herbal medicine practitioners in the Acholi sub-region, selected through referrals and non-probability snowball sampling. All data collected were recorded, transcribed verbatim, and analyzed using thematic content analysis, and emerging themes were presented.

Results: All participants believed herbal medicine could cure SCD, and the majority reported successfully treating patients. However, some practitioners remembered some patients who reported being sick with sickle cell crises many years after the "cure". "When they report improvement, I stop medication after some time…" thereafter, "I encourage them to go to the hospital, but they do not. They can stay without falling sick for a long time and declare themselves healed". Findings suggest herbal medicines are commonly used for SCD management in the Acholi sub-region. Most herbal medicine practitioners rely on the hospital diagnoses, although a few can tell who has sickle cell disease by looking at or touching them. A lot of mistrust exists between herbal medicine practitioners, the government, and researchers. This hinders efforts to integrate traditional medicine into mainstream healthcare and limits opportunities for scientific validation.

Conclusion: Herbal medicine practitioners believe herbs can treat sickle cell disease; however, further research is needed to investigate the nature of these herbs and their mechanisms of action, thereby facilitating the integration of herbal medicine into conventional care. We discuss some implications of the study for practice and policy.

Keywords: sickle cell disease, herbal medicine, alternative treatment, traditional medicine, Northern Uganda, Africa

Introduction

Sickle cell disease (SCD) is an inherited haemoglobinopathy characterized by the polymerization of hemoglobin S under hypoxic conditions. This results in erythrocyte rigidity, vaso-occlusion, and subsequent ischemic complications.[1–3] The burden of SCD is disproportionately high in sub-Saharan Africa, with prevalence rates ranging from 20% to 30% in western and eastern Africa.[4,5] In Uganda, SCD was first documented in 1949. The prevalence of sickle cell trait is estimated at 13.3% (ranging from 4.6% to 23.9%), while the disease affects approximately 0.7% of the population, with regional variations.[6,7] Northern Uganda reports the highest prevalence, with 19.2% of the population carrying the sickle

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cell trait and 1.3% affected by the disease at birth, contributing significantly to under-five mortality.[6,8] Notably, approximately 35% of Ugandan SCD patients exhibit fetal hemoglobin (HbF) levels ≥10%, indicating a milder clinical phenotype.[7]

The use of herbal medicine in managing SCD is well-documented across Africa, with several plant species demonstrating anti-sickling and therapeutic properties. In Nigeria, Yoruba traditional medicine incorporates Entandrophragma utile, Chenopodium ambrosioides and Petiveria alliacea, which have exhibited anti-sickling effects in vitro.[9] Similarly, in western Cameroon, the Euphorbiaceae family is widely utilized in SCD treatment, with plant parts such as bark (39.3%) and seeds (35.7%) being administered via maceration, decoction, and direct chewing.[10]

Studies on pigeon peas (Cajanus cajan) have indicated anti-sickling activity, with clinical evaluations suggesting a reduction in vaso-occlusive crises and potential hepato-protective effects.[10–14] Furthermore, herbal medicines such as Zanthoxylum species, including Zanthoxylum chalybeum in Uganda, have been implicated in fetal hemoglobin (HbF) induction, offering potential therapeutic benefits.[15] However, concerns regarding these herbal remedies' bioavailability, safety, and adverse reactions remain unresolved, necessitating further scientific scrutiny.[16]

Hydroxyurea was introduced in Uganda for SCD treatment through research in 2017[17] and later rolled out to hospitals for free distribution in 2020.[18–20] Before the introduction of biomedically approved therapies such as hydroxyurea, herbal medicine was the primary treatment modality for SCD in Uganda, as in many African settings. Currently, up to 59% of individuals with SCD in Africa rely on traditional medicine for disease management.[21] However, the prevalence and specific practices related to herbal medicine use among SCD patients in northern Uganda remain largely undocumented.

Traditional herbal remedies continue to be dispensed informally in local markets[22–24] and within communities under the discretion of herbal medicine practitioners, who determine dosage and administration based on indigenous knowledge systems.[23,25] The Traditional and Complementary Medicine Act of Uganda's objective (i) emphasizes the collaboration and integration of traditional medicine practices into conventional care.[3]

Understanding the perspectives and practices of herbal medicine practitioners who manage sickle-cell in Uganda is crucial for informing evidence-based research, strengthening regulatory frameworks, and fostering collaboration between traditional and conventional healthcare systems. Therefore, this study seeks to bridge the gap between indigenous and modern medical practices by exploring the perspective and practice of herbal medicine practitioners in SCD treatment within northern Uganda, with the ultimate goal of advancing culturally appropriate and integrative healthcare models.

Methods

This study employed a qualitative research design utilizing in-depth interviews to explore the perspectives of herbal medicine practitioners in the treatment of sickle cell disease (SCD) across all districts of the Acholi sub-region in northern Uganda (Gulu, Kitgum, Lamwo, Nwoya, Amuru, Omoro, Agago, and Pader). Fieldwork took place between October and December 2024. Participants were purposively selected based on their recognition within the community as providers of herbal treatments for SCD. Eligibility criteria included any herbal medicine practitioners acknowledged by their community for treating SCD, while those unwilling to provide informed consent for audio recording were excluded from the study.

The initial participant was identified through referral by a village health team member or a knowledgeable community member. Snowball sampling was then employed, whereby each interviewed practitioner was requested to refer the researcher to additional practitioners to participate in the study. Written informed consent was obtained, stipulating the study aims and objectives. In-depth interviews were conducted until thematic saturation was achieved, signifying the emergence of no new themes. The herbal medicine practitioners were asked about their demographic characteristics, how they learnt about the sickle cell herbal treatment, how they prepare and administer the herbs to patients and whether they are will to reveal the herbs to the researchers. Interviews were audio-recorded, transcribed verbatim, and subjected to a thematic content analysis approach using Atlas.ti version 7.5.18. Data were systematically coded into sub-themes and subsequently synthesized into overarching themes to capture key insights.

Results

Demographic Characteristics of Study Respondents

We interviewed 24 herbal medicine practitioners from the Acholi subregion. Their ages ranged from 14 to 78, they practiced their trade for over three years, and the majority lived in a rural setting (18/24). The 14-year-old started practicing at a young age with his grandmother, but after her death, he has worked alone for nearly three years. The majority of the herbal medicine practitioners were females (15/24). The majority were from Nwoya (8/24), Gulu (6/24), and Amuru (5/24), and a few were distributed in other districts of the Acholi subregion.

My Observation

Many herbal medicine practitioners believe that the practice of administering herbal medicines to patients is a sacred endeavor that requires the blessing of the ancestors. One participant (Female participant 5) performed a ritual before the in-depth interview to consult the ancestors and ascertain whether the researcher genuinely had good intentions to talk to her and whether her information would not be used to harm her. She fetched water in a calabash and circled it with some leaves, and began to talk to it. After a few minutes, she told the researcher that the ancestors had accepted her to speak. That is when the interview began.

Many of the interviews were conducted in Acholi language, a language well known to the researcher. However, the interview settings were often tense, as the majority of the herbal medicine practitioners identified themselves as witchdoctors and preferred to consult with their ancestors before the interviews.

Herbal Medicine Practitioners' Perspectives on Sickle Cell Disease Treatment

The analysis revealed a number of common themes from most participants, which enhances our understanding of sickle disease management issues in communities. Nine major themes related to the diagnosis of sickle cell disease, herbs for treating it, learning to treat sickle cell disease with herbal medicines, additions to herbal remedies, effectiveness of herbal treatment, cure, treatment costs, collaboration, and joining the business of herbal medicine practice.

Theme 1: The Diagnosis of Sickle Cell Disease

Across the Acholi subregion, sickle cell is known by a variety of names. However, many people just call it "sickle cell". This persistence may be attributed to the lack of a standardized or widely accepted local nomenclature for the disease. The common names include "twoo lee" (Disease of the blood vessels), "Twoo rubanga" (disease of God), "Twoo amwoda-kum" (the disease that pains the body), "Twoo ma mato remo" (disease that drinks blood), "Twoo madongo" (big diseases), "Twoo akwota-kwota" (disease that swells the body), "Two Remo" (disease of blood), "Two ma nero lutino" (disease that dries up children) and "Twoo cogo" (disease of the bone).

Most herbal medicine practitioners rely on the hospital's diagnosis, while a few can tell who has sickle cell disease by looking at or touching them.

> They come with their diagnosis from the hospital. (Female Participants 1, 3, 6, 9, 10, 12, 18, 19, 22 and Male Participants 13, 14, 15, 16, 17, 20, 21)

> …Spirits in me tell me what the patient is suffering from before I treat them. When I lay my hands on the patients, I feel their blood moving; then I know their disease. (Female Participant 2)

> I can see their appearance; the children are usually small, stunted, and anemic. But I insist they come with the diagnosis from the hospital. (Male Participant 15)

Theme 2: The Herbs for Sickle Cell Disease

All the herbal medicine practitioners declined to reveal the plants they used for treating sickle cell disease. However, a few of them gave the trade names of their herbs.

Habitats for the Herbs

The herbs are found in diverse habitats, from the wild within swamps to being grown at home. Many respondents reported these.

> I harvest most of my herbs from the forest but have a few planted at home. Some herbs grow by the river banks or anywhere. (Female Participant 2)

> I harvest them from anthills. It grows anywhere around anthills. (Female Participant 24)

> I harvest the roots of these plants. They are short plants around the foot of Got Atoo (Atoo hill) or a few places in Anaka. I have not seen them in other places yet. (Female Participant 5)

Time of Harvesting the Herb

Most herbal medicine practitioners harvest their herbs during specific hours of the day, while a few harvest at any time when the need arises or when the herb is rare. Many respondents gave the time they harvest their herbs.

> I harvest the herbs only in the early morning before sunrise and after sunset. (Female Participant 1)

> The crawling herbs I get during the day. The leaves are harvested early in the morning and boiled before being administered to the patients. The roots in the evening. (Female Participant 3)

> I collect the medicine anytime because they are difficult to find. When I have a chance to get it, I harvest the roots. (Female Participant 5)

> I collect the medicine early in the morning before washing my face. If you wash your face, it does not work. (Female Participant 7)

> I harvest the medicines when there is sunshine. (Female Participant 16)

Pre-Performed Rituals

Most herbal medicine practitioners performed rituals while processing the herbal medicines before dispensing them to patients. All the rituals involved getting a live hen, holding it by the legs, and circling it around the herbs. Some herbal medicine practitioners killed the hen afterwards and ate it, while others kept the hen to multiply.

> "Abuku yata ni ki gweno latwol onyo matar wek otii maber" (I cycle my herbal medicine with a brown or white hen to make it work well) when I have just collected it from the forest. (Female Participant 2)

> "Abuku ki gweno" (I cycle my herbal medicine with a hen), but I don't kill the chicken. (Female Participant 3)

> "Abuku ki gweno" (I cycle my herbal medicine with a hen). The chicken is then eaten after the ritual. (Female Participant 5)

Theme 3: Learning to Treat Sickle Cell Disease with Herbal Medicines

Most herbal medicine practitioners were instructed how to treat sickle cell disease through a dream, while others were handed these herbs by their parents or grandparents. Many respondents reported these.

> I had a grandchild with sickle cell disease. We used to take the child to the hospital, and the medicine there was not helping much. One day, I dreamt about herbal medicine. A stranger showed me the herb in a dream, how to prepare it and give it to my grandchild, and for how long. I followed the instructions when I woke up, and the child was healed. Since then, I used the same medicine to treat other people with the same disease. (Female Participant 10)

> …I dreamt about the child of my brother who was sick with sickle cell disease. He was getting medication from Gulu Hospital. After that dream, I gave him the medicine, and he was fine. He has never returned to the hospital. Thereafter, I started treating other people with sickle cell disease using the same medicine. (Female Participant 6)

When I lie down to sleep, "dako moo mutegi madit" (an old fat woman) comes to me and shows me the patients who are yet to come, what they are suffering from and what medicine I should give them. If the medicine is new, she takes me to where I will find it and how to harvest, prepare and give it to the patient. When I wake up in the morning, I go to where I was shown in the dream, harvest the herbs and prepare them to wait for the patient. Sometimes, I wake up when the patient is already there, and then I tell them to wait a bit for me to harvest the herbs and prepare. (Female Participant 2)

My mother showed me the medicine before she died. (Male Participant 8)

I was given by my grandfather 19 years ago when he was sick in hospital at the time. He instructed me not to drink alcohol if I was to give that medicine to people. He instructed me how to administer it to people. (Female Participant 12)

I learnt from my auntie, who used to treat various diseases before the advent of Western medicine, and I used to collect the herbs for her. She explained to me how the herbs are prepared and what they are used for. (Male Participant 15)

Theme 4: Additions to the Herbs

Most herbal medicine practitioners prepare their remedies by mixing the herbs with water, with some opting to boil the mixture before administering it orally. A few practitioners apply the herbs topically or combine them with sesame (simsim) oil for application on swollen body areas and around the waistline. However, most respondents reported that they do not add any substances apart from water.

I add honey to the sieved liquid of the boiled medicine before administering it to the patient. (Female Participant 12)

I only ask the caregivers to crush the herbs and cook with "alot boo" without frying or adding peanut butter. (Male Participant 14)

Sometimes, I put a mixture of herbs like "Olwiro" and others that are grown by the riverbanks. (Male Participant 20)

Theme 5: The Treatment of Sickle Cell Disease

Administering the Herbs

Some herbal medicine practitioners mix a combination of herbs, while others give different herbs at different times orally. Others apply herbal medicines topically.

I give the medicines once in the morning on an empty stomach every two days. (Male Participant 11)

…Crash them, mix them with water and boil them. I administer the liquid twice daily for four to nine months. (Female Participant 18)

I do not mix the herbs. The herbs are given at least 4 hours apart, morning, afternoon and evening. I pound the herbs and put them in a dry place after drying. (Female Participant 3)

I harvest the roots, crash and boil them, and give them three times daily to drink for six to nine months. The herb residue is added to the patient's bathing water. (Female Participant 19)

Side Effects of the Herb

Common side effects reported from herbal treatment include the urge to sleep after taking the medicine, dizziness, body weakness, diarrhea, vomiting, body itching, and a bitter taste.

When the patient is given the medicine, they feel general body weakness for at least an hour. (Female Participant 10)

The drug is powerful, so it makes the patient very weak. Some patients vomit a lot; others will have diarrhea. (Male Participant 11)

Some people report a bitter taste, but it doesn't give them harmful side effects. If the bitterness is unbearable, you mix it with honey. (Male Participant 15)

Theme 6: The Cure for Sickle Cell Disease

Existence of Cure

All the herbal medicine practitioners believe that the herbal medicine that cures sickle cell disease exists, even if they do not have it themselves. Twenty of the twenty-four herbal medicine practitioners interviewed admitted to curing sickle cell disease and are willing to direct the researchers to their clients.

> I encourage them to go to the hospital, but some do not. They can stay without falling sick for a long time and declare themselves healed. (Female Participant 3)

> Last year, I treated eight people who recovered. (Female Participant 5)

> Four patients got healed last year and one this year. (Female Participant 24)

Stopping Treatment

The herbal medicine practitioners stop the patients from medication when healing has occurred. The patients are told to continue with their daily lives.

> When they report improvement, I stop medication after some time. (Female Participant 10)

> …They stop taking the medication when they have healed. (Male Participant 15)

Treatment Failure

The primary cause is incomplete treatment and failure to follow the treatment schedule or adhere to the restrictions of foods and drinks.

> Some of them are too lazy to continue taking the herbal medicine every day; some are drunkards, while others do not have the money to continue treatment. (Female Participant 1)

> If a patient does not take the herbal medicines continuously, they do not heal; they keep coming back with problems. (Female Participant 2)

Assessment for Cure

Most herbal medicine practitioners assess the effectiveness of their treatment based primarily on patient reports. Some encourage patients to seek medical evaluation at hospitals; however, many patients do not return for formal testing due to financial constraints. Practitioners often conclude that patients are cured if they do not experience symptoms for an extended period. Nonetheless, a few practitioners have observed cases where patients previously deemed cured later return with symptoms consistent with sickle cell disease, raising concerns about the long-term efficacy of herbal treatments.

> They tell me that they no longer fall sick. I have not taken them to the hospital to confirm the healing. (Male Participant 15)

> I tell them to go to the hospital, but they do not return. (Male Participant 14)

> I can see the patient and know whether the patient is healed or not. (Male Participant 8)

> I also encourage them to confirm the diagnosis in the hospital. (Male Participant 20)

> They report that they are fine, but they return with complaints after some time. (Female Participant 22)

Theme 7: Costs of Treatment

The average cost for herbal medicines ranges from 20,000 to 2,000,000 Ugandan shillings (equivalent to $6 - $60). The cheaper medicines do not cure sickle cell disease. There is no standard cost for the drugs, and there is no free medicine.

I ask for a chicken (costing about 20,000 shillings) each time the patient comes. (Female Participant 9)

I charge 50,000 shillings per treatment each time they come. (Female Participant 4)

I charge 200,000 shillings to show them the herbal medicines. When they are healed, and they add 200,000 shillings. The treatment takes about three months. (Female Participant 6)

…They must buy me a plastic basin, a bar of washing soap and a kilogram of sugar, and then I bless them to heal completely. When the patient heals, they pay me one million shillings. (Female Participant 7)

Theme 8: Collaboration

Drive for Collaboration

Most herbal medicine practitioners know each other and refer clients to each other, especially if the colleagues are perceived to perhaps have better herbs than theirs.

I collaborate with fellow herbal medicine practitioners to show drugs or thoughts on how to grow our business. I want our herbal medicines to be used in hospitals in future. (Female Participant 1)

Mistrust in Collaboration

Some respondents believe there is a growing mistrust between herbal medicine practitioners, government agencies, and researchers.

I have many other drugs, but I cannot reveal all of them here. (Male Participant 8)

Legal-Related Fear

The fear of going to prison for administering fake medicines to the public has made herbal medicine practitioners work in isolation and secrecy. The few registered groups have members mainly living in urban areas, and the rural communities are isolated.

I belong to the wise-women herbal medicine practitioners' group. Our agenda is to plant medicinal plants all over the Acholi sub-region. (Female Participant 1)

We fear to treat people in the open because some people may kill us. So, I cannot reveal everything. (Female Participant 2)

……Bring us together and share how to advance our work. But because of fear of agencies who think we are misleading or endangering the public, we rarely meet. So, we are on our own for now. (Male Participant 11)

The association gave us seedlings of medicinal plants, and I have planted one acre already. They also taught us how to package our herbal medicines to make them presentable They also connect us to other herbal medicine practitioners who may have other medicines or treat other diseases so that we can refer patients whom we cannot manage. (Female Participant 2)

Theme 9: Joining the Business of Herbal Medicine Practice

Most herbal medicine practitioners were peasant farmers, while a few identified as witch doctors. Some herbal medicine practitioners were willing to train people at a fee to join the herbal medicine practice. In contrast, others swore never to share their knowledge with anyone except their biological grandchild.

I have a shop licensed by the National Drug Authority of Uganda. (Male Participant 15)

I work as a cook in a secondary school near my home. (Female Participant 4)

My primary job is treating people with traditional medicine. (Female Participant 5)

I must take you to the bush to harvest it and hold the same hoe together as we make the first cut on the soil for the herb to work. If I do not perform that ritual, that herb will not work. The power will not be there even if you know the herb. (Female Participant 1)

I am not telling you the names of my herbs now. I will show you the medicine when you pay me a million shillings. (Female Participant 7)

My grandmother refused me not to reveal the drug to anyone, so I am not going to show you. I will not show this medicine to anyone until one day, I show it to one of my children in my old age. (Male Participant 13)

…Two goats and five hundred thousand shillings to be shown the herbal medicines. (Female Participant 18)

Discussion

The herbal medicine practitioners interviewed in this study unanimously believed that herbal medicines could cure sickle cell disease (SCD), with many claiming to have successfully treated patients. Their treatment processes often involved rituals and were reluctant to disclose the specific plants used. This secrecy highlights the deeply rooted cultural and spiritual dimensions of traditional medicine in the Acholi sub-region.

Documented evidence from Nigeria suggests that certain herbal remedies, such as Cajanus cajan, can alleviate sickle cell crises and potentially cure the disease.[15,26,27] Similarly, Niprisan, a herbal medicine formulated from Eugenia caryophyllata, Piper guineense, Pterocarpus osun, Sorghum bicolor, and trona, has demonstrated potent antisickling properties in Nigeria.[28–30] Interestingly, Cajanus cajan and several ingredients found in Niprisan are common dietary components in the Acholi sub-region.[31] This could partly explain the persistence of the sickle cell gene in this population.

Herbal medicines like Zanthoxylum species induce HbF production to relieve the severity of sickle cell disease.[32–35] Zanthoxylum chalybeum, available in Uganda, increases HbF production.[33] It has no known teratogenic effects in vivo.[33] However, its prolonged use may be associated with liver and renal dysfunction and neoplasm growth in the gut.[33] However, most herbal drugs have poor bioavailability and lack proper pharmacovigilance monitoring procedures.[16]

Coffee is rich in alkaloids,[36] which can act as defense compounds in plants, efficiently protecting them against pathogens.[37] Alkaloids have analgesic, antitussive, anti-inflammatory, antispasmodic and neurological stimulant properties, although they may also cause gastrointestinal upsets.[38–40] The alkaloids in coffee may help relief pain in sickle cell patients. A study in the Democratic Republic of Congo also found that herbal samples collected from traditional healers exhibited significant antisickling activity, promoting quick relief of sickle cell crises, despite the absence of the healers' perspectives in the published findings.[25]

In contrast, conventional treatment with hydroxyurea requires weeks to increase fetal hemoglobin (HbF) levels before clinical improvement is observed,[41] while lowering sperm count in adult male patients.[42] This delay may drive patients and caregivers toward traditional medicine, as herbal treatments are perceived to provide immediate relief from sickle cell crises.

Furthermore, our study revealed an extensive but unregulated healthcare system within the community. Mistrust exists between herbal medicine practitioners, government agencies, and researchers, with many fearing legal repercussions or threats to their livelihoods. Traditional medicine is deeply embedded in Acholi culture.[43] While the Traditional Medicine Act and regulatory authorities exist in Uganda,[3] licensing and regulation require formal education, which remains a challenge in rural communities with high illiteracy rates.[44] To bridge this divide, Uganda could learn from Nigeria and other West African nations that have successfully integrated traditional medicine into formal healthcare systems, leading to standardized herbal treatments like Niprisan.[45] Such an approach could pave the way for new herbal-based therapies for SCD in Africa.

Strengths and Weaknesses of the Study

A key strength of this study is its focus on a region with the highest prevalence of the sickle cell gene in East Africa. Understanding local approaches to managing SCD is crucial, as these practices appear to contribute to the survival of

individuals with the disease. By investigating this phenomenon, the study provides valuable insights that could inform future research and policy.

However, the study faced significant challenges. The story is given verbally without any written evidence, which could be affected by recall bias. The secrecy surrounding herbal medicine practices made it difficult to obtain detailed information about the herbs used and their mechanisms of action. Additionally, the deep mistrust between herbal medicine practitioners and researchers limited the extent of collaboration. Overcoming these barriers will be essential for future studies seeking to validate the efficacy and safety of traditional treatments.

Conclusion

Traditional healing practices and herbal medicines for treating sickle cell disease remain prevalent in the Acholi sub-region of northern Uganda. Herbal medicine practitioners firmly believe in the curative potential of their treatments, yet their practices are often shrouded in secrecy and operate outside formal regulatory frameworks. Furthermore, significant mistrust exists between herbal medicine practitioners, the government, and researchers. This lack of collaboration hinders efforts to integrate traditional medicine into mainstream healthcare and limits opportunities for scientific validation.

Recommendations

1. In-depth studies should be conducted to analyze the composition, efficacy, and safety of herbal medicines used to treat SCD in the region. Understanding their biochemical properties could provide scientific validation and potential integration into conventional treatment strategies.
2. Efforts should be made to build trust between herbal medicine practitioners and governmental health agencies. Establishing open dialogues, community engagement programs, and legal protections for traditional healers could encourage transparency and collaboration.
3. Training programs tailored for traditional herbal medicine practitioners could be developed to enhance their knowledge of modern medical principles. This would enable them to collaborate more effectively with conventional healthcare providers while preserving their indigenous knowledge.

Data Sharing Statement

Data is available from the Faculty of Science and the Directorate of Research and Graduate Training of Gulu University, as well as from the principal investigator.

Ethical Approval and Consent to Participate

The study was approved by the Gulu University Research and Ethics Committee (GUREC 2023-653), and signed (thumb print) written informed consent was obtained from all participants. Participants below the age of 18 who are actively treating sickle cell disease were approved to be included in this study. This research was conducted in accordance with the Declaration of Helsinki.

Consent for Publication

All authors have agreed to publish this work.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors declare no conflicts of interest in this work.

References

1. Rees DC, Williams TN, Gladwin MT. Sickle-cell disease. *Lancet*. 2010;376(9757):2018–2031. doi:10.1016/S0140-6736(10)61029-X
2. Zittersteijn HA, Harteveld CL, Klaver-Flores S, et al. A small key for a heavy door: genetic therapies for the treatment of hemoglobinopathies. *Front Genome Ed*. 2021;2(34):1–25. doi:10.3389/fgeed.2020.617780
3. The traditional and complementary medicine act 2019. 2020. Available from: https://ncri.go.ug/wp-content/uploads/2020/12/Traditional-Medicine-Act-2019. Accessed July 25, 2025.
4. World Health Organization. Sickle cell disease. World Health Organization Africa. Available from: https://www.afro.who.int/news/african-health-ministers-launch-drive-curb-sickle-cell-disease-toll. Accessed February, 2023.
5. Wastnedge E, Waters D, Patel S, et al. The global burden of sickle cell disease in children under five years of age: a systematic review and meta-analysis. *J Glob Health*. 2018;8(2):021103. doi:10.7189/jogh.08.021103
6. Ndeezi G, Kiyaga C, Hernandez AG, et al. Burden of sickle cell trait and disease in the Uganda Sickle Surveillance Study (US3): a cross-sectional study. *Lancet Glob Health*. 2016;4(3):e195–e200. doi:10.1016/s2214-109x(15)00288-0
7. Ndugwa C, Higgs D, Fisher C, et al. Homozygous sickle cell disease in Uganda and Jamaica a comparison of Bantu and Benin haplotypes. *West Indian Med J*. 2012;61(7):684–691.
8. Nabongo P, Verver S, Nangobi E, et al. Two year mortality and associated factors in a cohort of children from rural Uganda. *BMC Public Health*. 2014;14(1):314. doi:10.1186/1471-2458-14-314
9. Ameh SJ, Tarfa FD, Ebeshi BU. Traditional herbal management of sickle cell anemia: lessons from Nigeria. *Anemia*. 2012;2012:607436. doi:10.1155/2012/607436
10. Yembeau NL, Biapa Nya PC, Pieme CA, et al. Ethnopharmacological study of the medicinal plants used in the treatment of sickle cell anemia in the west region of Cameroon. *Evid Based Complement Alternat Med*. 2022;2022:5098428. doi:10.1155/2022/5098428
11. Ekeke GI, Shode FO. The reversion of sickled cells by Cajanus cajan. *Planta Med*. 1985;51(6):504–507. doi:10.1055/s-2007-969576
12. Elemo GN, Erukainure OL, Okafor JNC, et al. Underutilized legumes, Cajanus cajan and Glycine max may bring about antisickling effect in sickle cell disease by modulation of redox homeostasis in sickled erythrocytes and alteration of its functional chemistry. *J Food Biochem*. 2022;46(9):e14322. doi:10.1111/jfbc.14322
13. Iwu MM, Igboko AO, Onwubiko H, Ndu UE. Effect of cajaminose from Cajanus cajan on gelation and oxygen affinity of sickle cell haemoglobin. *J Ethnopharmacol*. 1988;23(1):99–104. doi:10.1016/0378-8741(88)90118-3
14. Ogoda Onah J, Akubue PI, Okide GB. The kinetics of reversal of pre-sickled erythrocytes by the aqueous extract of Cajanus cajan seeds. *Phytother Res*. 2002;16(8):748–750. doi:10.1002/ptr.1026
15. Akinsulie AO, Temiye EO, Akanmu AS, Lesi FE, Whyte CO. Clinical evaluation of extract of Cajanus cajan (Ciklavit) in sickle cell anaemia. *J Trop Pediatr*. 2005;51(4):200–205. doi:10.1093/tropej/fmh097
16. Okoh MP, Alli LA, Tolvanen MEE, Nwegbu MM. Herbal drug use in sickle cell disease management; trends and perspectives in Sub-Saharan Africa—a systematic review. *Curr Drug Discov Technol*. 2019;16(4):372–385. doi:10.2174/1570163815666181002101611
17. Opoka RO, Ndugwa CM, Latham TS, et al. Novel use Of Hydroxyurea in an African Region with Malaria (NOHARM): a trial for children with sickle cell anemia. *Blood*. 2017;130(24):2585–2593. doi:10.1182/blood-2017-06-788935
18. Olupot-Olupot P, Wabwire H, Ndila C, et al. Characterising demographics, knowledge, practices and clinical care among patients attending sickle cell disease clinics in Eastern Uganda. *Wellcome Open Res*. 2020;5:87. doi:10.12688/wellcomeopenres.15847.2
19. Independent_Reporter. Caretakers of sicklers decry high price of hydroxyurea. *The Independent*. 2021. Available from: https://www.independent.co.ug/caretakers-of-sicklers-decry-high-price-of-hydroxyurea/. Accessed July 25, 2025.
20. Apolot C, Obakiro SB, Mukunya D, Olupot-Olupot P, Matovu JKB. Caregivers' use of herbal and conventional medicine to treat children with sickle cell disease at Jinja Regional Referral Hospital, Eastern Uganda: a cross-sectional study. *PLoS One*. 2023;18(9):e0291008. doi:10.1371/journal.pone.0291008
21. Awor S, Bongomin F, Kaggwa MM, Pebalo FP, Musoke D. Prevalence of use of herbal medicines for the treatment of sickle cell disease in Africa: a systematic review and meta-analysis. *J Herbal Med*. 2023;42:100735. doi:10.1016/j.hermed.2023.100735
22. Lubega M, Osingada CP, Kasirye P. Use of herbal medicine by caregivers in the management of children with sickle cell disease in Mulago National Referral Hospital-Uganda. *Pan Afr Med J*. 2021;39:163. doi:10.11604/pamj.2021.39.163.20740
23. Egunyomi A, Moody JO, Eletu OM. Antisickling activities of two ethnomedicinal plant recipes used for the management of sickle cell anaemia in Ibadan, Nigeria. *Afr J Biotechnol*. 2009;8(1):020–025. doi:10.5897/AJB2009.000-9004
24. Tabuti JR, Kukunda CB, Kaweesi D, Kasilo OM. Herbal medicine use in the districts of Nakapiripirit, Pallisa, Kanungu, and Mukono in Uganda. *J Ethnobiol Ethnomed*. 2012;8(1):35. doi:10.1186/1746-4269-8-35
25. Kitadi JM, Mazasa PP, Tshibangu DST, et al. Ethnopharmacological survey and antisickling activity of plants used in the management of sickle cell disease in Kikwit City, DR Congo. *Evid Based Complement Alternat Med*. 2020;2020:1346493. doi:10.1155/2020/1346493
26. Raphael JL, Kavanagh PL, Wang CJ, Mueller BU, Zuckerman B. Translating scientific advances to improved outcomes for children with sickle cell disease: a timely opportunity. *Pediatr Blood Cancer*. 2011;56(7):1005–1008. doi:10.1002/pbc.23059
27. Anorue EC, Joshua PE. Evaluation of anti-sickling effects of two varieties of Cajanus cajan (L.) Huth on sickle cell beta thalassemia. *J Ethnopharmacol*. 2024;331:118280. doi:10.1016/j.jep.2024.118280

28. Iyamu EW, Turner EA, Asakura T. In vitro effects of NIPRISAN (Nix-0699): a naturally occurring, potent antisickling agent. *Br J Haematol*. 2002;118(1):337–343. doi:10.1046/j.1365-2141.2002.03593.x
29. Obodozie OO, Ameh SJ, Afolabi EK, et al. Standardization of the components of niprisan: a phytomedicine for treating sickle cell disease. *J Med Plants Res*. 2009;3(4):284–289.
30. Obodozie OO, Ameh SJ, Afolabi EK, et al. A normative study of the components of niprisan--an herbal medicine for sickle cell anemia. *J Diet Suppl*. 2010;7(1):21–30. doi:10.3109/19390210903534988
31. Amone C. We are strong because of our millet bread: staple foods and the growth of ethnic identities in Uganda. *TRAMES*. 2014;18:159. doi:10.3176/tr.2014.2.04
32. Bianchi N, Zuccato C, Lampronti I, Borgatti M, Gambari R. Fetal hemoglobin inducers from the natural world: a novel approach for identification of drugs for the treatment of β-thalassemia and sickle-cell anemia. *Evid Based Complement Alternat Med*. 2009;6(2):141–151. doi:10.1093/ecam/nem139
33. Ogwang P, Ralph T, Agwaya M, et al. Repeat-dose effects of Zanthoxylum chalybeum root bark extract: a traditional medicinal plant used for various diseases in Uganda. *Afr J Pharm Pharmacol*. 2008;2:101–105.
34. Okagu IU, Ndefo JC, Aham EC, Udenigwe CC. Zanthoxylum species: a comprehensive review of traditional uses, phytochemistry, pharmacological and nutraceutical applications. *Molecules*. 2021;26:4023. doi:10.3390/molecules26134023
35. Ouédraogo L, Fuchs D, Schaefer H, Kiendrebeogo M. Morphological and molecular characterization of Zanthoxylum zanthoxyloides (Rutaceae) from Burkina Faso. *Plants*. 2019;8(9):353.
36. Kurek J. *Introductory Chapter: Alkaloids - Their Importance in Nature and for Human Life*. IntechOpen. 2019.
37. Matsuura HN, Fett-Neto AG. Plant alkaloids: main features, toxicity, and mechanisms of action. In: Gopalakrishnakone P, Carlini CR, Ligabue-Braun R, editors. *Plant Toxins*. Springer Netherlands; 2015:1–15.
38. Qiu S, Sun H, Zhang AH, et al. Natural alkaloids: basic aspects, biological roles, and future perspectives. *Chin J Nat Med*. 2014;12(6):401–406. doi:10.1016/s1875-5364(14)60063-7
39. Daley SK, Cordell GA. Alkaloids in contemporary drug discovery to meet global disease needs. *Molecules*. 2021;26(13):3800. doi:10.3390/molecules26133800
40. Hamed Z, Mojtaba Afshari B. Chapter 5: Secondary metabolites: alkaloids and flavonoids in medicinal plants. In: Eva I, editor. *Herbs and Spices*. IntechOpen; 2023.
41. Khargekar N, Banerjee A, Athalye S, et al. Role of hydroxyurea therapy in the prevention of organ damage in sickle cell disease: a systematic review and meta-analysis. *Syst Rev*. 2024;13(1):60. doi:10.1186/s13643-024-02461-z
42. Kovacic P. Hydroxyurea (therapeutics and mechanism): metabolism, carbamoyl nitroso, nitroxyl, radicals, cell signaling and clinical applications. *Med Hypotheses*. 2011;76(1):24–31. doi:10.1016/j.mehy.2010.08.023
43. Mwaka AD, Achan J, Orach CG. Traditional health practices: a qualitative inquiry among traditional health practitioners in northern Uganda on becoming a healer, perceived causes of illnesses, and diagnostic approaches. *PLoS One*. 2023;18(4):e0282491. doi:10.1371/journal.pone.0282491
44. UDHS. Uganda demographic and health survey 2022. 2022. Available from: https://www.health.go.ug/wp-content/uploads/2023/09/UDHS-2022-presentation-final.pdf. Accessed July 25, 2025.
45. Balogun JA. Emerging developments in traditional medicine practice in Nigeria. In: *The Nigerian Healthcare System: Pathway to Universal and High-Quality Health Care*. Springer International Publishing; 2021:235–275.

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