



## Comparative study of herbal medicine use in pregnancy: Evidence from Nigeria and Uganda

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### Abstract

**Introduction:** This study comparatively examined the prevalence, patterns, and factors associated with herbal medicine use among pregnant women in Nigeria and Uganda. **Methods:** A comparative descriptive analysis was conducted using primary data from two cross-sectional studies conducted among pregnant women attending antenatal clinics in Nigeria and Uganda. Data were analyzed using SPSS. **Results:** Herbal medicine use during pregnancy was reported by 50.6% and 88.5% of the respondents in Nigeria and Uganda respectively. Concurrent use of herbal and orthodox medicines was reported by 31.1% of Nigerian and 70.9% of Ugandan respondents. Use during the first trimester occurred in 26.2% of Nigerian and 22.7% of Ugandan respondents. Socio-cultural beliefs and health-system constraints such as affordability and poor access to healthcare facilities were key drivers of use in both countries. Significant associations ( $p < 0.05$ ) were observed between herbal medicine use and age, education level, occupation, income, and place of residence with 81.0% of Ugandan respondents using herbs to keep the baby healthy. **Conclusion:** Herbal medicine use during pregnancy is widespread in both Nigeria and Uganda, with higher prevalence observed in Uganda; underscoring the need for strengthened antenatal counseling, regulatory oversight, and culturally sensitive maternal health policies.

**Keywords:** Herbal medicine, Pregnancy, Nigeria, Uganda, Traditional medicine

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## 1. Introduction

During pregnancy, women undergo significant physiological transformations involving anatomical, hormonal,

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and metabolic adaptations that frequently result in uncomfortable symptoms including nausea, vomiting, abdominal discomfort, and fatigue, leading them to seek relief through various therapeutic approaches (Jackson et al., 2024).

Across sub-Saharan Africa and other low- and middle-income regions, expectant mothers commonly turn to herbal remedies to address pregnancy-related ailments such as morning sickness, anemia, malaria, infections, and to facilitate childbirth (El Hajj and Holst, 2020; Muteebwa et al., 2021). This widespread utilization of plant-based medicines stems from deeply embedded cultural traditions, indigenous healthcare systems, and longstanding practices, with users viewing these remedies as naturally derived, safer, more accessible, and economically viable compared to conventional pharmaceutical treatments (Muteebwa et al., 2021; Adeoye and Etuk, 2023).

Nevertheless, medication use during pregnancy demands cautious evaluation due to modified drug processing in the body, the transfer of substances across the placenta, and potential risks of birth defects or complications during pregnancy (El Hajj and Holst, 2020; Kwame Ameade et al., 2018).

Both Nigeria and Uganda are characterized by extensive biodiversity and deeply rooted cultural practices involving herbal medicine utilization. Traditional healers continue to serve as significant healthcare providers, particularly in rural and semi-urban communities where conventional medical services may be inaccessible or limited (El Hajj and Holst, 2020). Research demonstrates that herbal medicine use during pregnancy spans across various socioeconomic strata and educational backgrounds, with studies showing usage rates ranging from 19.4% to over 70% among pregnant women in these countries (Jackson et al., 2024; Muteebwa et al., 2021).

However, the safety profiles and therapeutic effectiveness of numerous herbal preparations used during pregnancy lack comprehensive scientific documentation (El Hajj and Holst, 2020). In contrast to conventional medications, herbal products typically bypass stringent clinical testing, standardized dosage protocols, and systematic safety monitoring programs (El Hajj and Holst, 2020). This regulatory gap is particularly concerning given that certain botanical substances may exhibit properties that could stimulate uterine contractions, induce pregnancy termination, or cause organ toxicity, highlighting significant risks associated with their unsupervised use during gestation (El Hajj and Holst, 2020; Kwame Ameade et al., 2018).

In the past years, one study in Nigeria has shown herbal medicine use prevalence of 19.4% in current pregnancies and 35.3% in previous pregnancies (Jackson et al., 2024). In Uganda, one study reported 100% of participants using herbal medicines, with 58.8% using them primarily in the first trimester (Nabirye and Najjemba, 2021). Key drivers include family recommendations, perceived safety, lower cost, and limited access to conventional healthcare (Nabirye and Najjemba, 2021). Critically, only 27.9% of herbal medicine users disclose their use to healthcare providers (Im et al., 2024) raising significant concerns about potential herb-drug interactions and unmonitored pregnancy risks.

Although herbal medicine use during pregnancy is widespread in Nigeria and Uganda, there remains a lack of comparative, evidence-based data on its prevalence, determinants, and potential risks. Pregnant women often use herbal remedies concurrently with orthodox medicines without disclosure to healthcare providers, increasing the risk of herb-drug interactions and adverse pregnancy outcomes. Regulatory frameworks for herbal medicines remain weak, and antenatal care providers often lack training to adequately counsel women on herbal medicine use. Therefore, the aim of this study is to comparatively assess the use of herbal medicine during pregnancy among women in Nigeria and Uganda, with the goal of generating evidence to inform maternal healthcare practice, policy formulation, and public health education.

## 2. Materials and methods

### 2.1. Study design

This study employed a comparative descriptive design based on primary analysis of two cross-sectional studies conducted among pregnant women attending antenatal clinics in Nigeria and Uganda. The design enabled the assessment of prevalence, patterns, and factors associated with herbal medicine use among pregnant women attending Antenatal Care (ANC) clinics in the selected study sites.

## 2.2. Study settings

In Nigeria, the study was conducted in selected Local Government Areas (LGAs) in Benue State, including Ogbadibo, Okpokwu, Makurdi, Gboko, and Gwer East, which represent both urban and rural populations. The Ugandan component of the study was conducted in Sembabule District, located in the Central Region of Uganda. Two Health Centre III facilities – Mateete HCIII and Lwebitakuli HCIII – were purposively selected based on ANC attendance volume.

## 2.3. Study population

The study population comprised pregnant women aged 15-50 years who were registered and attending ANC services at the selected health facilities during the study period in both countries.

## 2.4. Sample size determination and sampling technique

In Nigeria, the study population consisted of about 4,000 pregnant women while in Uganda, the study population consisted of 3,785 pregnant women, who attended ANC clinics in the two selected health facilities within three months prior to data collection. The sample size was calculated using the Raosoft sample size calculator with a 95% confidence level, 5% margin of error, and 50% population proportion, yielding a sample size of 349, approximated to 350 respondents. Proportionate sampling was used to allocate respondents to each health facility

## 2.5. Inclusion and exclusion criteria

Pregnant women attending ANC clinics who provided informed consent were included in the study at both sites. Women who were critically ill, in active labor, unconscious, or unable to respond to the questionnaire were excluded ([Nnaemeka et al., 2021](#)).

## 2.6. Data collection instrument

Data collection utilized a comprehensive, structured questionnaire methodology consistent with established research practices in herbal medicine studies during pregnancy. Similar approaches have been successfully employed in recent studies, including the use of structured questionnaires for assessing herbal medicine use among pregnant women (3). The multi-sectional questionnaire design aligns with previous research that examined socio-demographic factors, prevalence patterns, and usage determinants ([Jackson et al., 2024](#)).

The instrument's five-section structure comprehensively addresses key research domains: participant demographics, herbal medicine usage patterns, pregnancy-related health conditions and antenatal care utilization, motivational factors for herbal medicine use, and participant attitudes toward herbal remedies during pregnancy. This comprehensive approach mirrors methodologies used in cross-sectional studies examining traditional medicine utilization among pregnant women in Sub-Saharan Africa (9).

## 2.7. Validity and reliability of the instrument

The validation process incorporated rigorous quality assurance measures through expert consultation and pilot testing, following established research protocols. Content and face validity assessment through professional review ensures the instrument's appropriateness for the target population ([Muteebwa et al., 2021](#)). The reliability assessment using Cronbach's alpha coefficient ( $\geq 0.70$  threshold) represents standard practice for ensuring internal consistency in questionnaire-based research on herbal medicine use during pregnancy.

## 2.8. Data collection procedure

The data collection protocol emphasized ethical compliance and participant welfare, consistent with established research standards. Trained research assistants administered questionnaires at antenatal care facilities, similar to approaches used in Nigerian studies where respondents completed questionnaires during antenatal appointments ([Jackson et al., 2024](#)). The voluntary participation principle and confidentiality maintenance align with ethical standards observed in comparable studies examining herbal medicine use among pregnant women ([Nyeko et al., 2016](#); [Muteebwa et al., 2021](#)).

## 2.9. Data analysis

Data were entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 22. Descriptive statistics, including frequencies, percentages, means, and medians, were used to summarize variables. Inferential statistics such as chi-square tests and logistic regression analysis were performed to determine factors associated with herbal medicine use during pregnancy. Statistical significance was set at  $p < 0.05$ .

## 2.10. Ethical considerations

Ethical approval for the study was obtained from the Research Ethics Committee of the Department of Clinical Pharmacy and Pharmacy Management, University of Nigeria, Nsukka (UNN) and Research and Ethics Committee of Kampala International University for the Nigerian and Ugandan study respectively. Written informed consent was obtained from all respondents and confidentiality of information was strictly maintained.

## 3. Results

### 3.1. Response rate

A total of 500 and 450 questionnaires were distributed, of which 350 were correctly completed and returned, giving a response rate of 70.0% and 77.7% for Nigeria and Uganda respectively.

### 3.2. Socio-demographic characteristics of respondents

#### 3.2.1. Nigeria

Among the 350 Nigerian respondents, half were aged 21-30 years (50.0%), followed by those aged 31-40 years (30.8%). Most respondents were married (85.4%). In terms of occupation, 28.9% were housewives, 25.7% were private sector employees, and 23.1% were civil servants. Educational attainment showed that 41.4% had tertiary education, while 7.1% had no formal education. Regarding household income, 42.9% earned between ₦21,000 and ₦50,000 monthly.

#### 3.2.2. Uganda

In Uganda, the majority of respondents were aged 21-30 years (46.6%), and most were married (89.3%). About one-third were housewives (33.7%), and 32.4% had primary education. Two third of the respondents (59.2%) have been pregnant 2-4 times, 67.2% had no history of miscarriage, and 51.7% were urban occupants. The comparison of their demographic characteristics is shown in Table 1.

### 3.3. Prevalence of herbal medicine use during pregnancy

Table 2 shows that in Nigeria, 62.0% of respondents reported using herbal medicine for general health problems, while 50.6% had used herbal medicine specifically during pregnancy. About one-third (31.1%) reported concomitant use of herbal medicines with antenatal drugs.

In contrast, herbal medicine use during pregnancy was markedly higher in Uganda. Nearly all respondents (94.9%) had used herbal medicine to treat health problems, and 88.5% reported using herbal medicine during pregnancy. Most Ugandan respondents (90.9%) reported using herbal medicines alongside prescribed antenatal drugs.

### 3.4. Timing and pattern of herbal medicine use

In Nigeria, herbal medicine use occurred predominantly during the second trimester (30.0%) and throughout pregnancy (28.6%). About 26.2% used herbal medicine during the first trimester, while 6.2% reported use during labor.

Similarly, in Uganda, the second trimester was the most common period for herbal medicine use (54.7%), followed by use throughout pregnancy (15.5%) and during the first trimester (22.7%). A small proportion of the respondents used herbs during labor (3.2%) (Table 2).

### 3.5. Routes of administration

Oral administration was the most common route in both countries. In Nigeria, 54.0% of respondents took herbal medicines orally, while others applied them topically on the abdomen (17.1%) or used vaginal insertion

| <b>Table 1: Socio-demographic characteristics of respondents (Nigeria vs Uganda)</b> |                     |                     |                    |
|--------------------------------------------------------------------------------------|---------------------|---------------------|--------------------|
| <b>Variable</b>                                                                      | <b>Category</b>     | <b>Nigeria n(%)</b> | <b>Uganda n(%)</b> |
| Age (years)                                                                          | <20                 | 35(10.0)            | 42(12.0)           |
|                                                                                      | 21-30               | 175(50.0)           | 163(46.6)          |
|                                                                                      | 31-40               | 108(30.8)           | 105(30.0)          |
|                                                                                      | >40                 | 32(9.2)             | 40(11.4)           |
| Marital status                                                                       | Married             | 299(85.4)           | 313(89.3)          |
|                                                                                      | Single/Other        | 51(14.6)            | 37(10.7)           |
| Education                                                                            | No formal           | 25(7.1)             | 48(13.7)           |
|                                                                                      | Primary             | 35(10.1)            | 113(32.4)          |
|                                                                                      | Secondary           | 145(41.4)           | 157(44.8)          |
|                                                                                      | Tertiary            | 145(41.4)           | 32(9.1)            |
| Education status of husband                                                          | No formal education | 24(6.9)             | 36(10.6)           |
|                                                                                      | Primary             | 31(8.9)             | 110(32.4)          |
|                                                                                      | Secondary           | 101(28.9)           | 108(31.9)          |
|                                                                                      | Tertiary            | 134(38.4)           | 31(9.1)            |
|                                                                                      | Postgraduate        | 59(16.9)            | 53(15.6)           |
| Occupation                                                                           | Housewife           | 10(28.9)            | 113(33.7)          |
|                                                                                      | Civil servant       | 31(23.1)            | 34(10.1)           |
|                                                                                      | Private sector      | 90(25.7)            | 72(21.5)           |
|                                                                                      | Trader              | 50(14.3)            | 51(15.2)           |
|                                                                                      | Student             | 28(8.0)             | 23(6.9)            |
| Average income in dollars                                                            | <30                 | 86(24.6)            | 95(33.9)           |
|                                                                                      | 31-50               | 150(42.9)           | 66(23.6)           |
|                                                                                      | 51-100              | 36(24.6)            | 49(17.5)           |
|                                                                                      | 101-150             | 19(5.4)             | 22(7.9)            |
|                                                                                      | >150                | 9(2.6)              | 48(17.1)           |

| <b>Table 2: Prevalence and pattern of herbal medicine use during pregnancy</b> |                     |                    |
|--------------------------------------------------------------------------------|---------------------|--------------------|
| <b>Indicator</b>                                                               | <b>Nigeria n(%)</b> | <b>Uganda n(%)</b> |
| Herbal use for general ailments                                                | 217(62.0)           | 332(94.9)          |
| Herbal use during pregnancy                                                    | 177(50.6)           | 308(88.5)          |
| Concurrent use with orthodox/ ANC drugs                                        | 109(31.1)           | 318(90.9)          |
| <b>Trimester of use</b>                                                        |                     |                    |
| First trimester                                                                | 92(26.2)            | 79(22.7)           |
| Second trimester                                                               | 105(30.0)           | 191(54.7)          |
| Throughout pregnancy                                                           | 100(28.6)           | 54(15.5)           |
| During labor                                                                   | 22(6.2)             | 11(3.2)            |

| Table 2 (Cont.)                |           |           |
|--------------------------------|-----------|-----------|
| Route of administration        |           |           |
| Oral                           | 189(54.0) | 281(80.3) |
| Topical/ Abdominal application | 60(17.1)  | 28(8.0)   |
| Vaginal insertion              | 15(4.3)   | 2(0.6)    |
| Others                         | 13(3.7)   | 9(2.6)    |

(4.3%). In Uganda, oral use was reported by 80.3% of respondents, with fewer using topical, inhalational, or other methods.

### 3.6. Types of herbal medicines used

In Nigeria, commonly reported herbal medicines included Kwambe (4.6%), guava leaf (4.3%), Agbo (3.7%), moringa leaf (2.9%). Notably, 35.4% of respondents could not identify the names of the herbs they used.

In Uganda, multiple-herb use was common (59.4%). Spinach weed was the most frequently reported single herb (11.4%), followed by *Hoslundia opposita* (4.9%) and *Emilia discifolia* (3.3%). Several other herbs were reported in smaller proportions as shown in Table 3.

| Table 3: Types of herbal medicines used |               |                               |               |
|-----------------------------------------|---------------|-------------------------------|---------------|
| Nigeria                                 |               | Uganda                        |               |
| Herbs Used                              | Frequency (%) | Herbs Used                    | Frequency (%) |
| Kwambe                                  | 16(4.6)       | Spinach weed                  | 35(11.4)      |
| Guava leaf                              | 15(4.3)       | Hoslundia opposita            | 15(4.9)       |
| Agbo                                    | 13(3.7)       | Emilia discifolia             | 10(3.3)       |
| Maringa leaf                            | 10(2.9)       | Mixture of more than one herb | 182(59.4)     |
| Do not know the name of herb used       | 124(35.4)     | Others                        | 64(21.1)      |
| Number of herbs identified              | 16            | Number of herbs identified    | 15            |

### 3.7. Reasons for herbal medicine use during pregnancy

Table 4 shows that in Nigeria, the most frequently cited obstetric reasons included abdominal or waist pain (38.7%), induction or enhancement of labor (33.7%), and nausea or vomiting (32.1%). Social and cultural beliefs played a major role, with 60.3% believing that herbs cure many illnesses. Health system-related factors included low cost of herbal medicines (56.9%) and difficulty accessing health facilities (43.4%).

| Table 4: Reasons for herbal medicine use during pregnancy |              |             |
|-----------------------------------------------------------|--------------|-------------|
| Reason                                                    | Nigeria n(%) | Uganda n(%) |
| Abdominal/ Waist pain                                     | 135(38.7)    | 97(27.7)    |
| Induce/ Enhance labor                                     | 118(33.7)    | 73(20.9)    |
| Keep baby healthy                                         | 82(23.4)     | 284(81.0)   |
| Herbs cure many illnesses                                 | 211(60.3)    | 167(47.7)   |
| Low cost                                                  | 199(56.9)    | 68(19.5)    |
| Nausea or vomiting                                        | 112(32.1)    | NR          |
| Difficulty accessing health facilities                    | 152(43.4)    | NR          |
| Note: NR – Not reported.                                  |              |             |

**Table 5: Reported health challenges following herbal medicine use**

| Health Challenge                 | Nigeria n(%) | Uganda n(%) |
|----------------------------------|--------------|-------------|
| Any adverse effect               | 47(15.1)     | 106(30.3)   |
| Abdominal pain                   | 8(2.3)       | 25(7.1)     |
| Vomiting                         | 8(2.3)       | 13(3.7)     |
| Bleeding                         | 6(1.7)       | 16(4.5)     |
| Weakness                         | 7(2.0)       | NR          |
| Miscarriage                      | 5(1.4)       | 20(5.7)     |
| <b>Note:</b> *NR = Not reported. |              |             |

In Uganda, obstetric reasons were dominated by the desire to keep the baby healthy (81.0%). Social beliefs such as herbs curing many illnesses (47.7%) and health system factors such as low cost of traditional antenatal care services were also influential.

### 3.8. Reported health challenges following herbal medicine use

#### 3.8.1. Factors associated with herbal medicine use

In Nigeria, herbal medicine use during pregnancy was significantly associated with age ( $p = 0.038$ ), occupation ( $p = 0.002$ ), respondents' educational status ( $p < 0.001$ ), husbands' educational status ( $p < 0.001$ ), and average monthly income ( $p = 0.001$ ).

In Uganda, significant associations were observed between herbal medicine use and age, occupation, educational status of respondents and their husbands, income level, and place of residence ( $p < 0.05$ ). Lower educational attainment and lower income were consistently associated with higher herbal medicine use as shown in Table 6.

#### 3.8.2. Perception of effectiveness and safety of herbal medicines

In Nigeria, 49.1% of respondents perceived herbal medicines to be effective during pregnancy, while only 19.3% believed they were safe. Perception of effectiveness and safety was significantly associated with respondent's educational status and monthly income ( $p < 0.05$ ).

**Table 6: Factors significantly associated with herbal medicine use**

| Factor                                                                        | Nigeria (p-value) | Uganda (p-value) |
|-------------------------------------------------------------------------------|-------------------|------------------|
| Age                                                                           | 0.038*            | <0.001*          |
| Occupation                                                                    | 0.002*            | <0.05*           |
| Educational status                                                            | <0.001*           | <0.01*           |
| Husband's education                                                           | <0.001*           | <0.001*          |
| Monthly income                                                                | 0.001*            | <0.05*           |
| Place of residence                                                            | NS                | <0.02*           |
| <b>Note:</b> *Statistically significant at $p < 0.05$ ; NS = Not significant. |                   |                  |

In Uganda, many 63.4% believed traditional medicines are effective especially in improving fetal health, while 26.9% of them agree that they are safe with only 3.3% acknowledging the risks associated with it.

## 4. Discussion

This comparative study provides important insights into the prevalence, patterns, and factors associated with herbal medicine use during pregnancy in Nigeria and Uganda. The findings reveal a high burden of herbal medicine use in both settings, with markedly higher prevalence in Uganda than Nigeria, underscoring the persistent reliance on traditional medicine for maternal healthcare in sub-Saharan Africa.



#### **4.1. Prevalence of herbal medicine use during pregnancy**

The present study demonstrates a high prevalence of herbal medicine use during pregnancy in both Nigeria and Uganda, with substantially higher utilization in Uganda. The finding that 88.5% of Ugandan respondents used herbal medicines during pregnancy compared to 50.6% in Nigeria highlights important cross-country differences in maternal health practices. This disparity may be explained by variations in health system accessibility, cultural embeddedness of traditional medicine, and community trust in traditional birth attendants. The widespread use of herbal medicine for general ailments further reinforces the perception of herbal remedies as a first-line healthcare option, particularly in resource-limited settings. This is evident among respondents from Uganda where almost all the pregnant women used herbal medicines to treat their general ailment.

#### **4.2. Concurrent use of herbal medicine with orthodox medication**

Concurrent use of herbal medicines with orthodox medicine was observed in majority of the respondents in Uganda compared to a few in Nigeria. The observation in Uganda is similar to that of Ethiopia where 89.8% of the respondent used orthodox and herbal medicine concurrently (Mekuria et al., 2017). Both poor communication with pregnant women and poor counseling skills by health care providers may contribute to this unhealthy practice as reported in some studies where majority of pregnant women who use herbal medicines (89.8%) did not discuss their use of herbal medicines with health care practitioners (Mekuria et al., 2017; Mothupi, 2014). The concurrent use of herbal medicines with orthodox medicine has been associated with several concerning health implications with potential for dangerous drug-herb interactions (Mothupi, 2014), high birth weights with increased risk of caesarean delivery, and cumulative harm of adverse effects (Sumankuuro et al., 2020). The concurrent use of herbal medicines with orthodox medicine during pregnancy revealed in this study presents significant safety concerns that require careful monitoring and healthcare provider awareness.

#### **4.3. Timing and pattern of herbal medicine use**

The second trimester emerged as the most common period for herbal medicine use in both countries. This may reflect increased maternal confidence after early pregnancy and the desire to manage pregnancy-related discomforts. Our finding agrees with other studies carried out in South Africa (Mabina et al., 1997). Ethiopia (Laelago et al., 2016; Bekele et al., 2024), which reported second trimester as the most common period for herbal medicine. However, the considerable proportion of women using herbal medicines during the first trimester is concerning, given the heightened vulnerability of the fetus during organogenesis. Another study reported a few (2.4%) women using herbal medicine during this critical period in pregnancy (Bishop et al., 2011). Continued use throughout pregnancy and during labor, particularly for labor induction, underscores the need for improved antenatal counseling and risk communication.

#### **4.4. Types of herbal medicines used**

A wide range of herbal medicines was reported, including locally identifiable preparations in Nigeria and predominantly multiple-herb combinations in Uganda. The inability of many respondents, especially in Nigeria, to identify specific herbs suggests limited knowledge of the constituents and potential pharmacological effects. Of great concern is the use of polyherbal mixtures among the respondents in Uganda, as this practice increases the likelihood of unpredictable interactions and toxicity, especially when combined with orthodox medicines.

#### **4.5. Routes of administration**

Oral administration was the dominant route in both countries, indicating systemic exposure to herbal constituents. This compares well with report from South Africa which showed that most herbal medicines were administered orally (Kekana and Sebitloane, 2020). This route of administration raises concerns regarding placental transfer and fetal exposure as studies have shown that active ingredients of medicinal plants can readily pass through biological barriers, including the placental barrier (Balarastaghi et al., 2022). Furthermore, phytochemicals can induce hormone imbalances and uterine contractions, potentially compromising pregnancy (Bernstein et al., 2021). Although less common, vaginal insertion and topical application may also pose risks such as infection, mucosal irritation, and localized toxicity. These findings emphasize the importance of educating pregnant women on safer routes and potential risks.



#### **4.6. Reported health challenges following herbal medicine use**

Reported adverse effects were more prominent in Uganda as shown in Table 5, with respondents experiencing symptoms such as abdominal pain, bleeding, vomiting, and miscarriage. Abdominal pain was the most common adverse effect. These adverse effects have been reported in other research works though they did not specify abdominal pain as the most common (Ahmed et al., 2018; Balarastaghi et al., 2022; Kennedy et al., 2016). These outcomes may be linked to uterotonic or toxic properties of certain herbal preparations.

#### **4.7. Reasons for herbal medicine use during pregnancy**

Belief in the effectiveness of herbal medicines, affordability, and cultural acceptability were the primary drivers of use in the two countries. In Uganda, the predominant motivation was the belief that herbal medicines promote fetal health, whereas in Nigeria, symptom relief and effective labor induction were more common reasons. These findings highlight the influence of deeply rooted cultural beliefs on maternal health decisions.

#### **4.8. Factors associated with herbal medicine use**

Socio-demographic factors such as age, education, occupation, and income were significantly associated with herbal medicine use. Women with lower educational attainment and income levels were more likely to rely on herbal remedies, possibly due to limited access to formal healthcare services or distrust of orthodox medicine. Our findings agree with the report from South Ethiopia which indicate that herbal medicine use is associated with educational status, income level, and age of women (Laelago et al., 2016). These associations underscore the need for targeted interventions addressing social determinants of health.

#### **4.9. Perception of effectiveness and safety of herbal medicines**

Perceptions regarding effectiveness and safety varied between countries. While many respondents believed herbal medicines were effective, fewer considered them safe, particularly in Nigeria. The more favorable perceptions observed in Uganda may reflect stronger cultural endorsement of traditional antenatal care. These perceptions influence disclosure of herbal use and willingness to accept medical advice.

#### **4.10. Policy implications**

The findings call for the integration of traditional medicine considerations into maternal health policies. Routine screening for herbal medicine use during antenatal care, regulation and quality control of herbal products, and collaboration with traditional birth attendants are essential. Policymakers should promote culturally sensitive education programs that emphasize evidence-based risk awareness.

### **5. Study limitations**

This study is limited by its cross-sectional design, which precludes causal inference. Self-reported data may be affected by recall bias and social desirability bias. Additionally, incomplete identification of herbal products limits detailed safety assessment. Despite these limitations, the study provides valuable comparative insights.

### **6. Conclusion**

Herbal medicine use during pregnancy remains highly prevalent in Nigeria and Uganda, with higher prevalence observed in Uganda. Sociodemographic factors, cultural beliefs, and accessibility strongly influence utilization. While herbal medicines are widely perceived as effective and affordable, concerns regarding safety, particularly in Uganda, highlight the need for improved maternal health education, regulatory oversight, and culturally sensitive policy interventions. Addressing herbal medicine use during pregnancy through evidence-based, context-specific strategies is essential for improving maternal and fetal health outcomes in sub-Saharan Africa.

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