

# Use Of Herbal Medicine Among Pregnant Women Attending A Tertiary Hospital In Northern Nigeria

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## Abstract

**Background:** There is limited data on the use of herbal medicine by pregnant women in Nigeria. This study was aimed at determining the prevalence of use, socio-demographic pattern, knowledge and attitude of pregnant women to the use of herbal medicine among those attending the antenatal clinic of the Aminu Kano Teaching Hospital, Kano, a tertiary hospital in Northern Nigeria. **Methods:** A pre-piloted structured questionnaire was administered on 500 pregnant women attending the clinic to collect data on demographic s, obstetric factors, knowledge and use of herbal medicine during pregnancy. **Results:** 31.4% of pregnant women used herbal medicines in the subsisting pregnancy. Over 40% of respondents had at least primary education while nearly 30% had an income of less than 20,000 naira(130 USD) monthly. Statistically Significant associations were found between herbal medicine use and no formal education( $p<.05$ ), low economic status ( $p<5$ ) and self medication with orthodox drugs( $p<.05$ ). Ginger (*zingiber officinale*) and Garlic (*allium sativa*) were the most commonly used herbal medicines recalled by respondents. There was a significant association between education of respondents and their knowledge on safety of herbal medicines while a disparity was found between their views and practice. **Conclusion:** Use of herbal medicine among pregnant women in this environment was high. Clinicians and caregivers should have knowledge of the herbs commonly used by pregnant women and the potentials for toxicity. Attention should be given to enlightenment of pregnant women and the community on the dangers of herbal drug use during pregnancy.

## INTRODUCTION

The world has long been alerted of the risks associated with herbal medicines<sup>1</sup> but they continue to play significant roles in the management of minor and major ailments in developed and developing countries where their use is reported to be on the increase<sup>2,3,4</sup>.

The World Health Organization (WHO) estimates that about 80% of people living in Africa use traditional medicines for the management of their prevailing diseases<sup>5</sup>. This high use of herbal medicines may be due to accessibility, affordability, availability and acceptability of traditional herbal medicines by majority of the population in developing countries<sup>6</sup>.

However, a number of herbs could cause adverse effects due to adulteration, inappropriate formulations, plant and drug interactions, effects that are sometimes life threatening or lethal<sup>7</sup>.

Patients who are likely to be at risk from adverse effects of herbal medicines include those who are already prone to difficulties from orthodox medications including the fetus,

infants, pregnant and lactating women<sup>8,9</sup>. While pregnant women and their health care providers are increasingly aware that they should avoid unnecessary exposures during pregnancy, a paradoxical increase in the quantity of self administered herbal and over the counter(OTC) medication have been reported<sup>10,11</sup>.

Majority of the traditional herbal medicines used in Africa are provided by practitioners who live within the communities, have been trusted over time and are often willing to assist the patients with their knowledge and skills, sometimes at minimal costs to the patients<sup>6,12</sup>. Most of these herbal medicines are procured in their crude forms although some pharmaceutical prepackaged forms also exist and are available over the counter.

Herbal use among pregnant women raises particular concerns of safety. These safety concerns have been attributed to the herbal ingredients itself<sup>13,14</sup>, interactions between a herbal product and other pharmaceuticals (example, ginseng and insulin)<sup>15,16</sup> and contamination of products by unlabeled toxins (example, lead and mercury)<sup>17</sup>.

In spite of these known concerns, many patients do not disclose use of herbal medicines to their health care providers<sup>18</sup>, although some herbal use by pregnant women have been reported to have been recommended by health care providers<sup>19</sup>, natural or alternative health care providers, pharmacists,<sup>20</sup> friends or family<sup>20,21</sup> and even in response to information from media sources<sup>(22)</sup>.

In addition to these concerns, , poor regulatory framework for importation, manufacturing and distribution of herbal medicines in Africa keeps herbal medicine poorly researched where even the registered products do not adhere to GMP principles of safety and efficacy as is required for conventional medicines<sup>22,23</sup>.

Studies on herbal use in pregnancy have reported prevalences ranging from 7% to 96%<sup>(23)</sup>, most of them from developed countries. Studies have also reported different characteristics of women more likely to take herbal medicine in pregnancy. These included being older, married, primiparous, having tertiary education, being less educated and severity of nausea and vomiting<sup>19,23,24</sup>. While our knowledge of the potential side effects of many herbal medicines used in pregnancy are limited,<sup>25</sup> even amidst reports of teratogenicity in human and animal models<sup>25,26</sup>, data on herbal medicine use in pregnancy in sub Saharan Africa is scanty. To our knowledge, only one study had provided data evaluating some aspects of the use of herbal medicine during pregnancy in this region of Nigeria.<sup>12</sup>

This study therefore aims at determining the prevalence of use, socio- demographic pattern, knowledge base and attitude of pregnant women to the use of herbal medicines in this part of the country.

### **METHODS**

This prospective cross sectional study was conducted at the Antenatal Clinic of the Aminu Kano Teaching Hospital, Kano (AKTH), a tertiary hospital located in the heart of Kano, a largely commercial city. The hospital serves as a referral center, catering for the medical needs of about ten (10) million people spread across three States of Kano, Jigawa and Katsina all located in the North Western region of Nigeria.

### **SAMPLING**

We initially sought to recruit about 10% of the population of pregnant women going through the antenatal Clinic of AKTH each year, which would be 412 women. We also factored the prevalence of herbal medicine use as reported in

published studies using a 95% confidence level and allowing for a 5 – 10% variation. The greatest number needed for the study was 420. We rounded up the figure to 500 to allow for missing data within fields, as well as within sub groups. A convenience sampling method was used for the study. .

The study commenced only after the study protocol had been approved by the Ethical Committee of AKTH.

### **PARTICIPANTS AND DATA COLLECTION**

Pregnant women attending the antenatal Clinic of AKTH between April and June, 2010 were eligible for inclusion in the study. Patients who declined to participate in the study and those who were ill at the time of recruitment were excluded. The details of the study were explained to all participants and verbal informed consent obtained from all willing participants. No financial or material incentive was offered to participants. Four medical students and three hospital midwives assisted with interpretation where necessary and administration of questionnaires.

A structured questionnaire was designed by the research team for the study. The questionnaires were self administered and where necessary, were administered on the patients by the research team with the aid of the assistants who had been trained for the study. The questionnaire took about 10 minutes to complete and contained mainly close ended questions. The definition of herbal medicine was explained to the women to include those procured from the traditional herbal medicine man, those bought over the counter in shops, local markets and medicine stores or pharmacies. Data on demographic factors (age, education, income), obstetric factors (e.g gravidity, gestation age), were collected. Responses were also sought on use of herbs during pregnancy, self medication during pregnancy, safety of herbal medicines at different stages of pregnancy and to the fetus, mother or both.

The questionnaire was pre piloted using a sample of women from the same antenatal clinic who were not chosen to be part of the study. Necessary modifications were made before the study.

Data were entered into Microsoft excel data base. Analysis were done using SPSS 16 statistical software and included frequencies and summary descriptive statistics. Chi square was used to test associations. Level of significance was set at  $P < 0.05$ .

RESULTS

All questionnaires administered on the 500 pregnant women recruited into the study were completed. Table I shows the socio demographic characteristics of all participants.

Figure 1

Table 1: SOCIO-DEMOGRAPHIC DISTRIBUTION OF ALL PATIENTS IN THE STUDY (n (%))

Variables	All Patients n = 500	Patients Taking Herbal Medicine n = 157
<b>Maternal Age</b>		
≤ 20	52 (10.4)	13 (8.3)
21 – 30	315 (63.0)	96 (61.2)
31 – 40	133 (26.6)	48 (30.6)
<b>Educational Status</b>		
No Formal Education	35 (7.0)	24 (15.3)
Primary School/Secondary School	217 (43.4)	71 (45.2)
Undergraduate Education	152 (30.4)	45 (28.7)
Post Graduate Education	96 (19.2)	17 (10.8)
<b>Economic Status*</b> (Thousand N/Month)		
< 20,000	148 (29.6)	64 (40.8)
20,000 – 40,000	200 (40.0)	74 (47.1)
> 40,000	152 (30.4)	19 (12.1)
<b>Gestational Age</b>		
1 <sup>st</sup> Trimester	11 (2.2)	8 (5.1)
2 <sup>nd</sup> Trimester	166 (33.2)	72 (45.8)
3 <sup>rd</sup> Trimester	323 (64.6)	77 (49.1)
<b>Gravidity</b>		
1	127 (25.4)	37 (23.6)
2-4	240 (48.0)	64 (40.8)
≥ 5	133 (26.6)	56 (35.7)

\*Exchange rate- 1USD = 154 naira

Majority of the patients were in the age range of 21 – 30 years with a mean age of 28years(SD 5.6) . Gravidity range was 0-12, with a mean gravidity of 3.3(SD 2.2). Majority of the patients(48%) were in the gravidity range of 2- 4. There was no statistically significant association between the use of herbal medicine and the gravidity groups (P>0.05). One hundred and fifty seven patients (31.4%) used herbal medicines during pregnancy.

Most respondents had secondary school education, while nearly half had tertiary education . Use of herbal medicine in pregnancy showed statistically significant association with no formal education(P<0.05) while women with primary/secondary education and postgraduate education showed no statistically significant association with use of herbal medicine in pregnancy.

Over 70% of pregnant women had an income of at least 20,000 naira (130 USD) monthly. Women with monthly income of less than 130 USD showed statistically significant

association with the use of herbal medicine in pregnancy(P<0.05). However, women who earned a monthly income of more than 130 USD did not show statistically significant association with use of herbal medicine in pregnancy(P>0.05). About forty percent of the herbal medicine using women used herbal medicine in the first and second trimesters of pregnancy. The use of herbal medicine was statistically significant in the first trimester (P=0.001) and the second trimester(P=0.009) of pregnancy but not in the third trimester(P>0.05).

Among reported herbs or products used, respondents who used herbal medicine could only easily identify Ginger(zingiber officinale) and Garlic(allium sativa). While 117 (74.5%) of the herbal medicine using population admitted to have used Garlic, 131 (83.4%) of them had used Ginger at different times in this and other pregnancies. All herbal medicine using respondents had used other herbal medicines in addition to the Ginger and Garlic which they could remember.

Table 2 shows the use, attitude and knowledge of the herbal medicine using respondents.

Figure 2

Table 2: USE, ATTITUDE AND KNOWLEDGE OF PREGNANT WOMEN USING HERBAL MEDICINES.

Variables	Frequency(%)
Self Medication During Pregnancy	63(40.1)
Used Herbal Medicine In	
1 <sup>st</sup> Trimester	62(39.5)
2 <sup>nd</sup> Trimester	69(43.9)
3 <sup>rd</sup> Trimester	26(16.6)
1 <sup>st</sup> and 2 <sup>nd</sup> Trimester	21(13.4)
2 <sup>nd</sup> and 3 <sup>rd</sup> Trimester	10( 6.4)
Throughout Pregnancy	3( 1.9)
Herbal Medicine Use is Dangerous to	
Fetus	38(24.2)
Mother	18(11.5)
Both Mother and Fetus	52(33.1)
I Don't Know	49(31.2)
Herbal Drug Use Dangerous in	
1 <sup>st</sup> Trimester	100(63.7)
2 <sup>nd</sup> Trimester	48(30.6)
3 <sup>rd</sup> Trimester	57(32.5)
Throughout Pregnancy	53(33.8)
Why are you using herbal medicine?	
It is our traditional medicine	148(94.3)
I have been using it from birth	137(87.3)
Is it effective?	
Yes	32(20.4)
No	-
I am not sure	125(79.6)
Will you use herbal medicine again in pregnancy?	
Yes	92(58.6)
No	-
I don't know	65(41.4)

About forty percent of those using herbal medicine admitted to have been engaged in self medication of orthodox drugs during pregnancy. There was a statistically significant

association between use of herbal medicine during pregnancy and self medication with orthodox drugs during pregnancy ( $P=0.006$ ).

Fifty- two (33.1%) of the herbal medicine using women were of the opinion that herbal medicine use is dangerous to both mother and fetus, while 100 (63.7%) of them believe that drug use as a whole is dangerous in the 1<sup>st</sup> trimester and 33.8% believe that drug use is dangerous in all stages of pregnancy. On their reasons for using herbal medicines, 94.3% of respondents said they used herbal medicine because it is their traditional medicine, while 87.3% said they still use herbal medicine because they have been using it since birth. While nearly 80% of them are not sure of its efficacy, 58.6% said they will still use it in the future.

Mothers, peers, radio and television, community societies, and traditional healers were important sources of information on herbal medicine for the respondents.

Evaluation of the influence of various socio demographic factors on their views on herbal medicine utilization showed statistically significant association between educational status and their views on the dangers of herbal medicine use to the fetus ( $P < 0.05$ ).

### DISCUSSIONS

Over thirty one percent (31.4%) of all pregnant women in this study used at least one herbal medicine during their current pregnancy. This prevalence is higher than the 12.08% reported by Gharoro and Igbafe from Benin City<sup>27</sup>, while lower than the 43% reported by Fakeye and Colleague from Ibadan<sup>12</sup>. However, the Ibadan study which was a multicity study also reported lower prevalence of 35% for the North Central region of Nigeria, while other regions had much higher values. Comparatively, the prevalence in our study sits within the proportions of 36% reported by workers in Australia<sup>23</sup> and Norway<sup>28</sup>. In several parts of the world, particularly in developing countries access to herbal medicines is largely unrestricted. In contrast to prescription and newer over the counter medications, herbal products are usually marketed without the benefit of clinical trials to demonstrate either efficacy or safety<sup>18</sup>. Besides, manufacturers and purveyors of herbal medicines usually offer broad range of therapeutic claims which constitute powerful temptations for consumers<sup>12</sup>. Indeed, few studies are available on the safety of herbs for pregnant women<sup>29,30</sup>. One study had found that use of complementary and alternative medicines are associated with a 30% lower ongoing pregnancy and live birth rate during fertility

treatment<sup>31</sup>. Interactions between herbs and conventional prescriptions should evolve serious concerns among pregnant women and the general public as some herbs may amplify the effects of anticoagulants while some, including common fruits, interfere with cytochrome P450 enzyme systems which are critical to drug metabolism<sup>32,33</sup>.

The high prevalence of herbal medicine use in this environment among pregnant women can be adduced to its longstanding integration into the culture of the people, and its perception as their own indigenous medicine. This is evident in this study where a large majority of our respondents claim that herbal medicine is their traditional medicine which they have always used and will, even in the face of uncertain efficacy, continue using in the future. This finding agrees with other reports on the subject<sup>6,12</sup>. This reluctance to part ways with herbal medicine in the midst of poor scientific evidence of safety is probably a reason for the lax in the regulatory framework for traditional herbal practitioners in many countries including Nigeria, making it possible for patients to purchase and use herbal medicine without due control<sup>23</sup>.

In our study, nearly 75% and 83.4% of the pregnant women using herbal medicine, had used garlic and ginger respectively. This is higher than 1.4% and 11.1% for garlic and ginger use found in a similar study reported from Australia<sup>24</sup>. Garlic is considered to be non toxic as a food additive, but in large quantities, there are concerns that it may act as an abortifacient calling for avoidance of medicinal doses in pregnancy<sup>9</sup>. A study in rats had found an association between prenatal exposure to Ginger and increased fetal loss, increased fetal weight and bone maturation<sup>34</sup>. While another study on 27 women at 11 weeks gestation taking 1g ginger daily reported two abortion<sup>35</sup>. Ginger is known to cause increased uterine activity and its action as a thromboxane synthetase inhibitor could affect testosterone receptor binding<sup>36</sup> warranting cautious use and possibly avoiding doses above 1g per day during pregnancy.

In our study, use of herbal medicine was significantly associated with no formal education ( $P<0.05$ ) and low socioeconomic status as depicted by a monthly earning of less than 130 USD( $P<0.05$ ). This does not agree with reports from Norway<sup>28</sup>, India<sup>37</sup>, and Sweden<sup>38</sup> where education and higher socio- economic status were associated with herbal medicine use in pregnant women. This is conceivable in those societies where literacy levels are higher and economic indicators are better. In much of the developing world, the

largely unrestricted access to herbal medicines leads to indiscriminate use which is encouraged by the usually untested therapeutic claims by the ubiquitous herbal medicine man and other purveyors of these herbs most of whom live, are known, and accepted in the communities. This makes the herbs more acceptable to the unenlightened and less discerning groups in the society who are also more on the lower economic rung of society. Poverty and illiteracy place them at a disadvantage that makes them more vulnerable to the claims of these vendors even as they are most times unable to afford the usually more expensive orthodox drugs .

Over forty percent of the women taking herbal medicine in this study admitted to have been engaged in self medication with orthodox drugs during pregnancy. A statistically significant association was found between self medication with orthodox drugs and herbal medicine use in pregnancy ( $P < 0.05$ ) This agrees with the report of Sharma et al<sup>37</sup> and calls for education and counseling of pregnant women on the dangers of self medication to the fetus. The use of certain OTC drugs including the common non steroidal anti-inflammatory drugs has the potential of causing fetal injury.. Health care providers need to be aware of this possibility and routinely inquire about use of these drugs for self medication and advise against such use during pregnancy.

In this study, herbal medicine use by pregnant women showed a statistically significant association with use in first and second trimesters of pregnancy ( $P < 0.05$ ) but not with third trimester ( $P > 0.05$ ). This agrees with findings from similar studies conducted in the United States and Australia which found a higher prevalence and association of use in the 1<sup>st</sup> trimester<sup>18,39</sup>. These findings raise concerns about fetal safety because this is a critical period of fetal organogenesis and maturation<sup>40</sup>. Ironically, less than a quarter of them believe that herbal drug use is dangerous to the fetus. Consistent education and counseling is required to bring harmony between their knowledge and practice in relation to herbal drug use during pregnancy.

The influence of mothers , peers, radio and television adverts, community societies and traditional healers were found to be significant in disseminating information on the use of herbal medicines. This finding agrees with those of other workers in Nigeria and India.<sup>12,37</sup> However, in a pilot survey in Tuscany, Italy, 32.6% of the patients sampled consulted a gynecologist as the primary information source

for natural products during pregnancy<sup>41</sup>. Our finding calls for community mobilization which should include the husbands, community and religious leaders in order to change the orientation of the community and create awareness on the risks involved in indiscriminate use of herbal medicines during pregnancy and the need to get herbal drug use information from health practitioners.

The evidences available to date imply that herbal medicine use in pregnancy is not innocuous<sup>42,43</sup>. In the light of a high prevalence of use of herbal medicines in pregnancy in developed and developing countries, there is an urgent need to evaluate the safety of phytochemistry use during pregnancy; and until definitive data emerge , we agree with Ernst<sup>29</sup> that the best advice is to consider all herbal products contraindicated during pregnancy and to inform the pregnant women accordingly.

### **CONCLUSION**

This study reveals a 31.4% prevalence of herbal medicine use among pregnant women in our cohort. It also unveils an association between herbal medicine use and illiteracy, low socioeconomic status and self medication with orthodox drugs . Female formal education , health education as well as economic empowerment will help ensure women enlightenment and ability to appreciate the effects of drugs on the fetus, as well as afford appropriate drugs. Community mobilization is needed to control advertisements and ensure that information on the risks and safety of herbal medicines to the fetus and mother in pregnancy are included in the package. There is also a need for health care providers to take adequate drug history and counsel pregnant women on possible dangers of herbal medicine use. Regulatory agencies may also need to strengthen regulations relating to licensing and use of herbal medicines in pregnancy in our environment.

### **LIMITATIONS**

This study was subject to several limitations. Like all self reported exposure assessments, under reporting is very likely, especially in our environment where patients, for fear of rebuke by their physicians may down play their use of medicines not prescribed by their doctors.

Furthermore, the inability of patients to reliably define the various herbs used ostensibly due to the nature of the herbal product industry, made characterization difficult.

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