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Socio-demographic Determinants of Herbal Medicine Use in Pregnancy Among Nigerian Women Attending Clinics in a Tertiary Hospital in Imo State, South-East, Nigeria

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Abstract **Introduction:** The use of herbal medicines has been on the increase in many developing and industrialized countries. This high use may be due to accessibility, affordability, availability and acceptability by majority of the population especially in developing countries. **Aim:** This was to assess the socio-demographic factors affecting the pattern of herbal use during pregnancy among pregnant and nursing mothers attending clinics in a Tertiary Hospital in South East, Nigeria. **Methodology:** This is a hospital based cross-sectional study of 500 pregnant and nursing mothers attending clinics in a Tertiary Hospital in South East, Nigeria. Data was collected using a pretested, semi-structured, interviewer administered questionnaire and participants were selected using the systematic sampling technique. Data was analyzed using a computer software package (EPI-Info 7.1.3) and p-value was set at 0.05 significant levels. **Results:** The prevalence of herbal medicine use among the participants was 36.8% (184) and the commonest herbal used was bitter leaf/iron weed plant (vernonia Amygdalina), 54.3%. Socio-demographic characteristics of participants found to affect herbal medicine use in pregnancy were; age, (p=0.035), marital Status, (p=0.000), educational level, (p=0.000), educational level of partner, (p=0.014) and monthly income, (p=0.003). **Conclusion:** Prevalence of herbal medicine use was high and most of the determinants observed are modifiable, thus there is need to institute control appropriate measures by relevant authorities to tackle this problem.

Keywords: *socio-demographic, determinants, Herbal use, pregnancy, hospital, Nigeria*

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1. Introduction

Herbal medicines are defined as plant derived materials or preparations with therapeutic benefits, and contains raw or processed ingredients from one or more plants [1]. The use of herbal medicine has been on the increase in many developing and industrialized countries [3,4]. The use of herbal medicine during pregnancy is common, ranging from 7.0% to 55.0% [5]. Reviewed studies across the world show wide variations in prevalence of herbal medicine use. In the western world prevalence estimates of herbal medicine use in pregnancy varies considerably across countries, ranging from 52-58% in Australia and the United Kingdom [6,7] to 40-48% in Norway and Italy [8,9] and 6-9% in Canada and US [10,11]. In developing countries in Africa, especially Nigeria the same pattern still exist ranging from 12.08% to 66.7% among reviewed works [12,13,14,15,16].

This high use of herbal medicines may be due to accessibility, affordability, availability and acceptability of traditional medicines by majority of the populace in developing countries [17]. Some of the herbs could cause adverse effects due to adulteration, inappropriate formulations, plant and drug interactions, effects that are sometimes life threatening or lethal [18]. 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 fetuses, infants, pregnant and lactating mothers [19,20]. Herbal medicine use among pregnant women raises particular concerns of safety. Exposure of pregnant women to chemicals such as herbs and supplements during pregnancy period could affect their fetuses [21] and could contribute to maternal and fetal morbidity and mortality

for instance as common as the use of ginger is, a study in rats found an association between prenatal exposure to ginger in high quantities with increased fetal loss, increased fetal weight and bone maturation [22].

Herbal medicine use in pregnancy has been reported to be recommended by health providers [23,24], natural and alternative medicine providers [23,24,25], pharmacists [23,25], friends and family [23,26,27], based on information from media sources [23,28] or based on woman's own information and knowledge [23,29].

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 exist, it doesnot adhere to good manufacturing practices, principles of safety and efficacy as is required for conventional medicines [28,30].

Characteristics of women likely to take herbal supplements in pregnancy as reported in various studies include; being older i.e. women over the age of 35 [31,32,33], married [23,30,33], primiparous [7,12,23,26,33], having tertiary education [23,31,32,34,35,36] being less educated [12,14,30,37], low socioeconomic status [14], high socioeconomic status [34,34,36], trimester of pregnancy at herbal use [14,24,26], having higher gravidity and parity [15], higher body mass index [15], previous history of herbal use [37], prior pregnancy [31,32], and severity of nausea and vomiting [23,37,38]. Thus the aim of this study was to assess the socio-demographic and socioeconomic factors influencing herbal medicine use among pregnant women attending clinics in a Tertiary Hospital in Imo State, South East, Nigeria.

2. Methodology

Study Area and Study Population: This study was conducted at the Federal Medical Centre Owerri. Owerri is the capital of Imo State, and it's an urban town consisting of three Local Government Areas (LGAs) namely; Owerri Municipal, Owerri North and Owerri West [33]. It is located at Latitude 5° 29'O" N and Longitude 7° 2' O" E and has an estimated population of about 400,000 people [34]. Federal Medical Centre was established in 1994 and has about 700 bed spaces. It renders specialist care in pediatrics, obstetrics and Gynecology, Internal Medicine and Surgery. It serves as a referral center for other Primary and Secondary health facilities and also as a training facility for undergraduate and postgraduate programs in Medicine and allied courses. The study population comprised pregnant women attending Antenatal care (ANC) in the hospital and those that were attending postnatal care who had their ANC in the hospital

Study design: The study was a hospital based cross sectional descriptive study.

Selection Criteria: Only pregnant women attending ANC and those that delivered within 42 days prior to study who attended ANC in the hospital were enrolled for the study. Those who did not meet the above criteria were excluded.

Simple Size Determination and Sampling Technique: Using the Kish formula ($n=Z^2pq/d^2$) [35,36] for determining adequate sample size and further correcting for population less than 10,000 using $n_1=N/(1+(N/n_1)$, a total of 500 participants were interviewed for the study.

Where Z = standard normal deviate set at 1.96, p= Prevalence of herbal medicine use among pregnant women in a previous study [21], d=level of precision set at 0.05, q=1-p, N=total number of ANC and ANC attendees within the study period (2500), n=corrected sample size.

The sampling method used in this study was the systematic random sampling technique. Using the sampling fraction of 1/5, (n/N=500/2500), one out of every 5 women who attended the clinic in each day was selected and interviewed until the required sample size for the study was obtained. With an average of 100 attendees per clinic day, 20 women were studied each clinic day and the first participant was selected by simple random sampling by balloting, then subsequently multiples of 5 was selected until the required size for each day was gotten. Those selected that refused to participate were replaced by the next willing person on the row, using the daily clinic register.

Data Collection and Analysis: Data was collected using a pretested, interviewer administered, semi-structured questionnaire. The questionnaire comprise four sections; section A, contain questions on socio-demographic characteristics of participants, section B, contain questions on awareness and knowledge of participants on herbal medicine, section C contains questions on attitude of participants towards herbal medicine use while section D, contain question on utilization of herbal medicine. The questionnaire was coded before entering the data into the computer and all data was organized and analyzed by the researchers using computer software, (EPI INFO, 7.1.3). Descriptive statistics were presented as frequency, percentages, mean and standard deviations where necessary. For relationship of variables, chi-square test and logistic regression were used.

Ethical Approval: Ethical approval was gotten from the Ethical Committee of the Department of Community Medicine, Madonna University, Elele, Rivers State, Nigeria and from the hospital management of Federal Medical Centre Owerri before proceeding with the study. Informed verbal consent was obtained from each participant before questionnaire interviews were administered and participation to this study was voluntary as participants were free to leave at any level of the study.

3. Results

The mean age of the participants was 28.9+4.9 years with more than half of them (54.8%) being within the 21-30 years age bracket. Majority of the participants were Igbo's (83.0%), ever married, (89.2%) and had tertiary education, (55.2%). Their commonest occupation was trading, (29.8%) while the least was farming, (4.0%). Most of the participants, (82.8%), were attending ANC, and majority of them were in their second (52.3%) and third (30.4%) trimesters of pregnancy and were multigravidas, (73.4%). (Table 1)

The prevalence of herbal use among the participants was, 36.8%% and common herbs used were; Bitter leaf/iron weed plant (Veronica Amygdalina), (54.3%),

palm kernel oil (46.3%), Bitter kola (Garcinia kola), (39.7%), Dogoyaro (Neem leaves), (35.9%), Garlic (34.2%), Utazi (Jute leaves), (33.7%), and Ginger, (33.0%). More than half (53.3%) of the herbal drug users experienced one side effect or the other and the common side effects experienced with their use were; nausea, (100%), vomiting (77.6%), abdominal pain, (27.5%) and dizziness, (26.5%). A sizable proportion of herbal users, (41.8%), agreed to use it in future pregnancy. (Figure 1-Figure 5)

Table 1. Socio-demographic Characteristic of Participants

Variable	Frequency (n=500)	Percentage
Age group (yrs)		
≥20	34	6.8
21-30	274	54.8
31-40	173	34.6
>40	19	3.8
Total	500	100
	Mean Age = 28.9+ 4.9 yrs	
Tribe		
Igbo	415	83.0
Ikwere	39	7.8
Yoruba	16	3.2
Hausa	16	3.2
Others	14	2.8
Total	500	100
Marital Status		
Never married	54	10.8
Ever married	446	89.2
Total	500	100.0
Educational Status		
None	21	4.2
Primary	59	11.8
Secondary	144	28.8
Tertiary	276	55.2
Total	500	100
Occupation		
Trader	148	29.6
Civil Servant	110	22.0
House wife	77	15.4
Professional	46	9.2
Student	39	7.8
Artisan	39	7.8
Unemployed	21	4.2
Farmer	20	4.0
Total	500	100
Monthly Income (Naira)		
≤50,000	452	90.4
>50,000	48	9.6
Total	500	100
Clinic Attended		
ANC	414	82.8
PNC	86	17.2
Total	500	100.0
GA of Pregnant Mothers (414)		
First Trimester (1-2 wks)	68	16.4
Second Trimester (13-26 wks)	220	53.2
Third Trimester (>26 wks)	126	30.4
Total	414	100.0
Parity		
Primigravid (0)	79	15.8
Multigravida (1-4)	367	73.4
Grand multigravida (>4)	54	10.8
Total	500	100.0
	Mean parity 2.5±0.9	

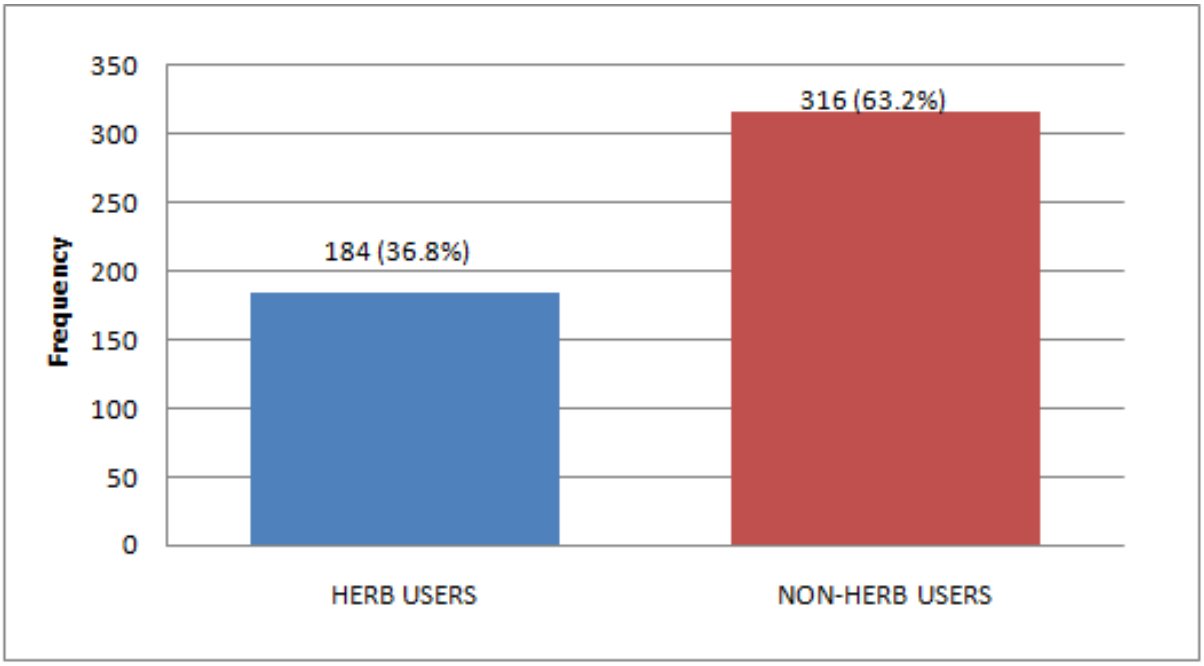

Figure 1. Herb use during pregnancy (n=500)

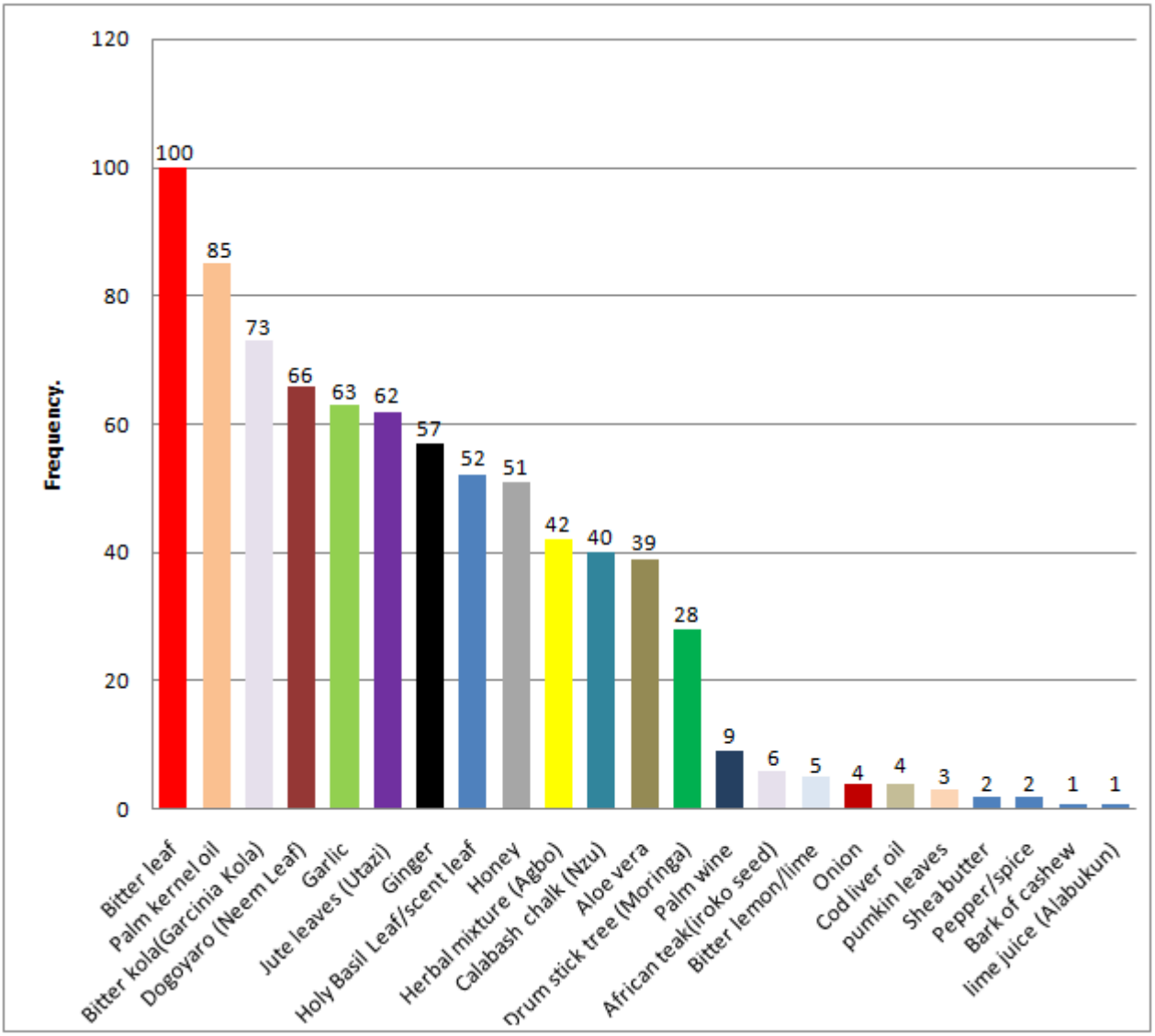

Figure 2. Commonly used herbs among participants (n=184) **

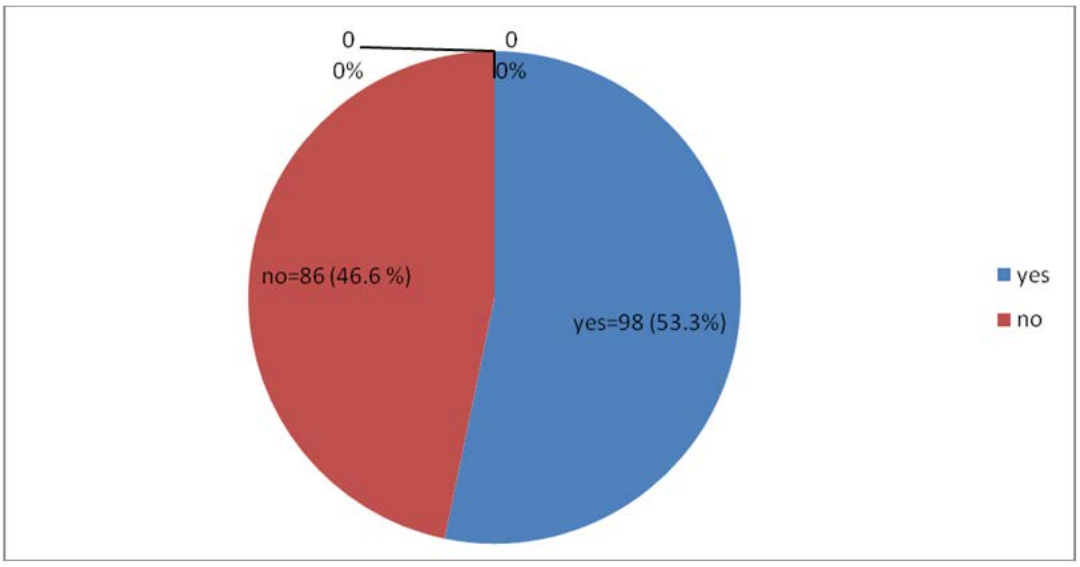

Figure 3. Experienced any side Effects (n=184)

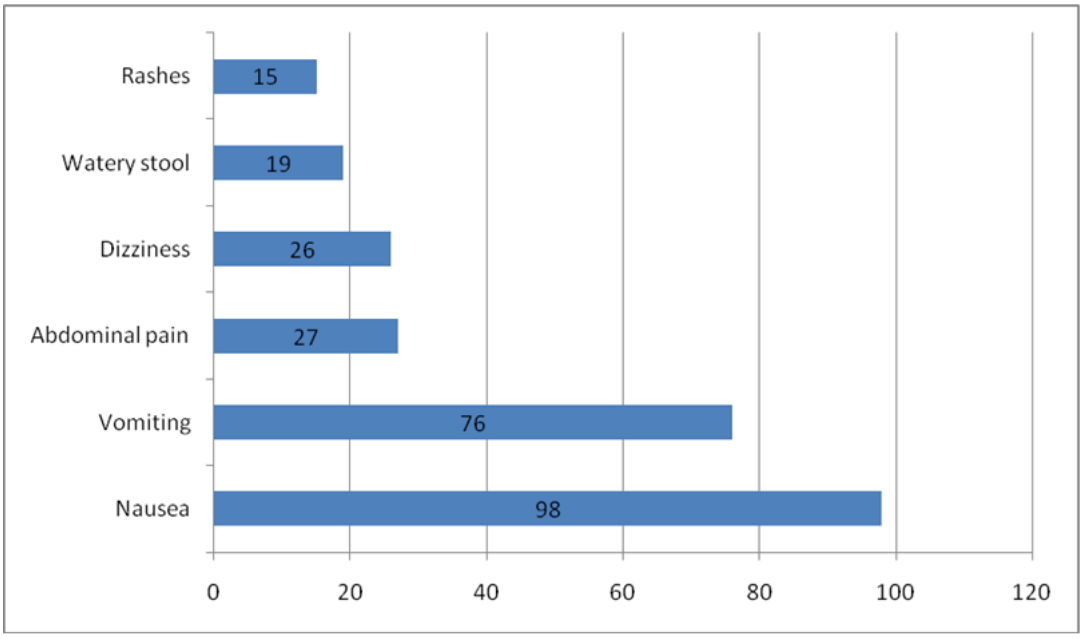

Figure 4. Types of side effect experienced (n=98)** (**= Multiple response)

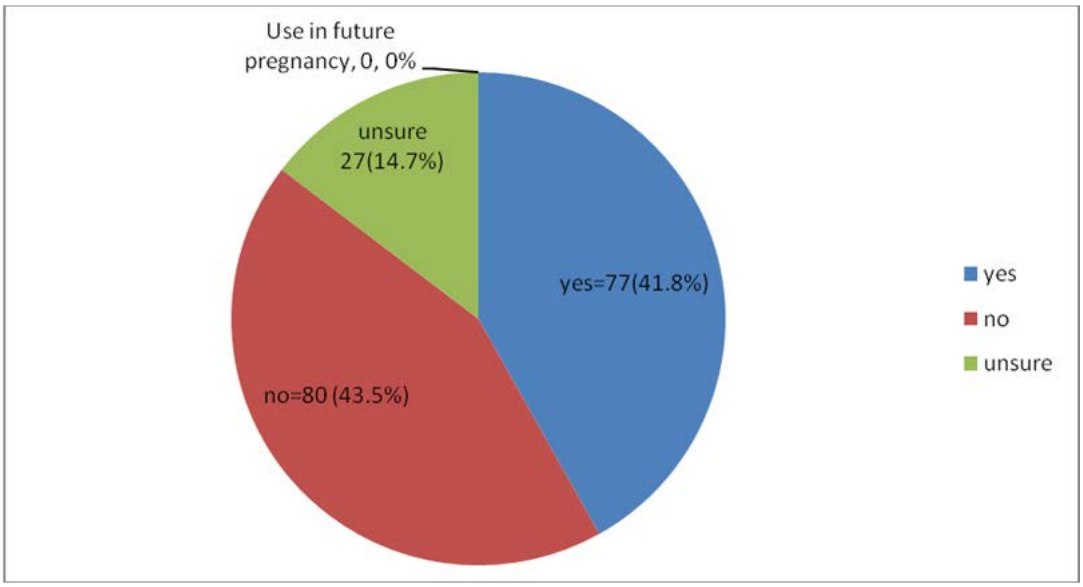

Figure 5. Use of herbs in future pregnancy (n=184)

Table 2. Socio-demographic characteristics of participants and use of herbs during pregnancy

Variable	Use of Herbs during Pregnancy			statistics(χ^2)/p-value
	Yes (%)	No (%)	Total (%)	
Age group (years)				
<20	14(41.2)	20(58.8)	34(100)	4.435 p=0.035* df=3
20-30	113(41.2)	161(58.8)	274(100)	
31-40	55(31.8)	118(68.2)	173(100)	
>40	2(10.5)	17(89.5)	19(100)	
Total	184(36.8)	316(63.2)	500(100)	
Tribe				
Igbo	151(36.4)	264(63.6)	415(100)	0.196 p=0.658 df=2
Ikwere	19(48.7)	20(51.3)	39(100)	
Others	14(30.4)	32(69.6)	46(100)	
Total	184(36.8)	316(63.2)	500(100)	
Marital status				
Never married	4(7.4)	50(92.6)	54(100)	22.487 p=0.000* df=1
Ever married	180(40.4)	266(59.6)	446(100)	
Total	184(36.8)	316(63.2)	500(100)	
Educational status				
No formal education	18(85.7)	3(14.3)	21(100)	67.651 p=0.000* df=3
Primary	22(37.3)	37(62.7)	59(100)	
Secondary	92(63.9)	52(36.1)	144(100)	
Tertiary	52(18.8)	224(63.2)	276(100)	
Total	184(36.8)	316(63.2)	500(100)	
Monthly income (Naira)				
≤50,000	157(34.7)	295(65.3)	452(100)	8.637 p=0.003* df=1
>50,000	27(56.3)	21(43.7)	48(100)	
Total	184	316(63.2)	500(100)	
Occupation				
Trading	57(38.5)	91(61.5)	148(100)	1.588 p=0.207 df=7
Civil servant	33(30.0)	77(70.0)	110(100)	
House wife	32(41.6)	45(58.4)	77(100)	
Professional	0(0.0)	46(100)	46(100)	
Student	18(46.2)	21(53.0)	39(100)	
Artisan	17(43.6)	22(56.4)	39(100)	
Unemployed	0(0.0)	21(100)	21(100)	
Farmer	12(60.0)	8(40.0)	20(100)	
Total	184(36.8)	316(63.2)	500(100)	
Parity				
Primigravida	33(41.8)	46(58.2)	79(100)	0.364 p=0.546 df=2
Multipara (1-4)	132(36.0)	235(64.0)	367(100)	
Grandmultipara (>4)	19(35.2)	35(64.8)	54(100)	
Total	184(36.8)	316(63.2)	500(100)	
GA of Index Pregnancy (n=414)				
First trimester	26(38.2)	42(61.8)	68(100)	0.350 p=0.554 df=2
Second trimester	86(39.1)	134(60.9)	220(100)	
Third trimester	42(33.3)	84(66.7)	126(100)	
Total	159(38.4)	255(61.6)	414(100)	
Clinic Attended				
Antenatal clinic	159(38.4)	255(61.6)	414(100)	2.667 p=0.102 df=2
Post-Natal clinic	25(29.1)	61(70.9)	86(100)	
Total	184(36.8)	316(63.2)	500(100)	
Level of Education of Spouse				
No formal education	9(60.0)	4(40.0)	15(100)	6.07 p=0.014* df=3
Primary education	10(32.3)	21(67.7)	31(100)	
Secondary education	71(44.1)	90(55.9)	161(100)	
Tertiary	94(32.1)	199(67.9)	293(100)	
Total	184(36.8)	316(63.2)	500(100)	
Occupation of Spouse				
Civil servant	70(38.7)	111(61.3)	181(100)	0.188 p=0.665 df=6
Trader	40(32.3)	84(67.7)	124(100)	
Professional	39(34.8)	73(65.2)	112(100)	
Artisan	17(37.8)	28(62.2)	45(100)	
Farmer	12(80.0)	3(20.0)	15(100)	
Unemployed	4(30.8)	9(69.2)	13(100)	
Student	2(20.0)	8(80.0)	10(100)	
Total	84(36.8)	316(63.2)	500(100)	

*=significant

Table 2 and Table 3 showed the socio-demographic determinants of herbal use in pregnancy. Age was found to significantly affect herbal medicine use in pregnancy, (χ^2=4,435, df=3, p=0.035), with those forty years and above being the least likely to use, (OR=0.168; 0.033-0.846; p=0.019). Herbal medicine use was higher among the ever married participants, (40.4%) than their never married counterparts, (7.4%), χ^2=22.487, df=1, p=0.000), with the ever married being about eight times more likely to use than their never married counterparts (OR=8.459; 3.002-23.833, p=0.000. Educational level of participants affected herbal medicine use significantly, (χ^2=67.651, df=3, p=0.000). The highest use was found among participants with no formal education (85.7%) while the least use was among participants with tertiary education, (18.8%), OR=0.039; 0.011-0.136, p=0.000. Monthly income of participants affected herbal use in pregnancy, (χ^2=8.637, df=1, p=0.003), with those earning above 50,000 naira (250 dollars) being more likely to use herbs during pregnancy, (OR=2.416; 1.323-4.412, p= 0.003). Educational level of spouse affected the use of herbs significantly (χ^2=6.07, df=3, p=0.014) with those whose spouses had no formal education, (60.0%) being more likely to use while their counterparts whose spouse had tertiary education, (32.1%) were the least likely to use, (OR=0.210; 0.063-0.699, p=0.012). Occupation of participants and that of their spouse did not affect herbal medicine use significantly (P>0.05) but those who were farmers with their spouses use herbs more than their counterparts. Tribe, parity, Gestational age of index pregnancy and clinics attended did not significantly affect the use of herbs during pregnancy (p>0.05).

Table 3. Socio-demographic predictors of herbal use during pregnancy

Variable	OR	95% CI	p-value
Age group (yrs)			
≤20	1.000	-	-
21-30	1.003	0.486-2.068	0.859
31-40	0.666	0.313-1.416	0.389
>40	0.168	0.033-0.846	0.019*
Marital status			
Never married	1.000	-	-
Ever married	8.459	3.002-23.833	0.000*
Educational status			
No formal education	1.000	-	-
Primary	0.099	0.026-0.375	0.000*
Secondary	0.295	0.067-0.977	0.047*
Tertiary	0.039	0.011-0.136	0.000*
Monthly income			
≤50,000 ($250)	1.000	-	-
>50,000 ($250)	2.416	1.323-4.412	0.003*
Level of education of spouse			
No formal education	1.000	-	-
Primary	0.212	0.052-0.857	0.044*
Secondary	0.351	0.104-1.186	0.091
Tertiary	0.210	0.063-0.600	0.012*

*=significant.

4. Discussion

The prevalence of herbal medicine use in pregnancy in this study was 36.8%. This was within the range of 6% to 66.7% reported from several studies [5-16]. There were wide variations in prevalence of herbal use across the globe. While our finding was higher than the findings in some reported works [10,11,12,14,15,38], it was lower or consistent with the findings in others [6,7,8,9,13,16,27,33]. These variations could likely be caused by several factors ranging from methodology of studies, to subjects characteristics, time of study and study area. Nevertheless, this prevalence reported in our study was high and portends great danger both to the women and their fetuses. This is because in our environment little or no research has been conducted on these mothers and their infants during and after delivery. Also the indiscriminate sale of herbal drugs in vehicles with loud speakers both in rural and urban centers in Nigeria, with little or no restriction is worrisome, as this aids the mass sale of these drugs to the unsuspecting masses with little or no information about the safety of these herbs.

The common herbs used by the women were; bitter leaf(iron weed plant), palm kernel oil, bitter kola (garcinia kola), dogoyaro (neem leaves), garlic, utazi (jute leaves) and ginger.

Though the pattern of herbs used varied greatly from one location to another due to their type of vegetation and culture, ginger and garlic have been consistently reported as some of the common herbs used in pregnancy from most of the works reviewed [8,10,13,14,15,27,33,38]. More than half (53.3%) of the herbal drug users reported having one side effect or the other and the major side effect experienced was vomiting followed closely by nausea, then abdominal pain and dizziness. This pattern is similar to that reported among pregnant women in Nigeria by Fakeyeetal in 2009 [13]. Nevertheless some of these side effects could be pregnancy related. Despite the high complaints of side effects, a sizeable proportion (44.8%) of herbal medicine users agreed that they will still use herbal drugs in their future pregnancy. This is of great concern owing to the effects. This shows how deep rooted herbal medicine use is in our culture and tradition. There is need for consistent health education and counseling concerning herbal drug use and its consequences

especially to the mothers and their fetuses during pregnancy.

Our study revealed that the age of participants was found to significantly affect use during pregnancy. The prevalence of use of herbs during pregnancy decreases with increasing age of participants with those forty years and above being the least likely to use. Age as an influencing factor has been reported in several studies [13,15,31,32,33], although most of the works reported increased use with increasing age of the women [15,31,32,33]. This variation could likely be due to the fact that most women in the younger age group in our country are those most likely to be ill-informed about herbs and could be in their first pregnancy. Most of them may lack exposure on the consequences of herbal use during pregnancy and could have been influenced by different opinions about herbs which are predominant in our environment.

Those who were ever married (currently married, divorced, separated or widowed) were found to use herbs during pregnancy more than their never married counterparts. This finding has been reported in other studies [23,30,33]. Most of those who are married are likely to have support from their husbands or partners, who can influence them on the use of herbs and may finance the purchase of these herbs. Also it has been reported that friends, neighbors and family members recommend these herbal medicine for those women [15,23,26,27,38].

Educational level of the women was found to affect herbal medicine use significantly with those with no formal education having the highest likelihood of herbal medicine use, while those with tertiary education had the least likelihood of herbal medicine use during pregnancy. This effect of education on use of herbal drugs in pregnancy has been corroborated in several studies [12,14,23,31,32,34,35,36,37]. Our study noted higher use in those least educated. This pattern has been reported in some studies [12,14,30,37], while on the other hand, some studies observed high use among those with tertiary or higher educational status [23,31,32,34,35,3,36]. This variation in use with educational status is likely to be connected with the place the study was conducted and the form of herbal products used. Some of the studies were conducted in societies or countries with high literacy level when compared to others and in some of these countries the herbs are well refined and packaged in several forms that can appeal to these women. Proper education exposes women to all forms of information about herbal drugs, which empowers them to make informed choice of what to use and what not to use. In our environment with low literacy rate, proper information about herbal drugs lacking, and where the information exist, it is most of the time incorrect because they are mostly given by unqualified persons especially drug vendors.

Also educational level of spouse or partner was found to have similar effect, with those whose partners have no form of education having the highest likelihood of herbal medicine use while the least likelihood of herbal medicine use was among those whose spouse had any form of tertiary education. Education of spouse can directly or indirectly affect the use of herbs during pregnancy. An informed male partner will likely inform the spouse on the dangers of herbal use. Also our society is a male dominated one and most of the males wield much authority in most households and can determine whether their spouses will use or not irrespective of her educational or socioeconomic status.

Socioeconomic status of the women as depicted by their monthly earning was found to significantly affect the use of herbal drugs during pregnancy. Those with monthly incomes greater than 50,000 naira (250 dollars) have more than 2 times the chance of using herbal medicine during pregnancy than those whose income was less than that sum. The effect of socioeconomic status on herbal medicine use during pregnancy has been observed in several studies [14,34,35,36]. This pattern of high use with high socioeconomic status reported in our study was found to be consistent with findings of some studies [34,35,36],while another study stated otherwise [14]. The place and site our study was conducted is an urban setting and precisely the state capital of an oil producing state in Nigeria, and so there is likelihood of better economic status. Recently some of the herbal products in the country are well packaged, commonly distributed all over the country and sold even higher than most conventional drugs, and so it is only those who can afford them that will buy from the vendors or in shops where they are sold. Also most of these women are already attending clinics in the hospitals and are likely to be taking drugs prescribed by health personnel, thereby creating double cost on themselves such that the poor ones may not be able to fund the purchase of these packaged herbal drugs.

Prevalence of herbal medicine use was slightly higher among primigravidas, though not significant. Being a primigravida has been reported in several studies to affect use significantly [7,12,23,26,33]. This could be explained by the fact that most primigravidas are naive and lack information on the consequences of herbal use in pregnancy and could be easily influenced by the views of older women, family members, and friends.

Also the clinic attended and the Gestational age of index pregnancy did not significantly affect the use of herbs during pregnancy. This finding was consistent with reports from Oriefet al., [23] which found no effect with duration of current pregnancy and herbal use, but some others disagree with the finding and reported higher use in those at first and second trimesters of index pregnancy [14,24,26]. This variation could be partly explained by the methodologies applied in carrying out these studies, the location and the volume of participants at each period of their pregnancy prior to study.

5. Conclusion

The prevalence of herbal medicine use in pregnancy was found to be high. Also the major determinants of herbal use in pregnancy observed in our study were; age of participants, marital status, educational level of women and spouse, and socioeconomic status of the women. Some of these determinants that affect use are modifiable using appropriate intervention programs and the right personnel. There is need to educate and counsel pregnant women on the harmful effects of herbal medicine use during pregnancy by the health personnel and other appropriate available channels. Girl child education is vital and paramount, so governments should implement

compulsory girl child education even up to the University level and also give scholarship where available fund exist. There is also need to enforce existing regulation on the manufacturing, distribution, and sale of herbal products.

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Competing Interests

The authors hereby declare that there were no competing interests.

Authors' Contributions

Author CBD,NCC, and KAUwas involved in the design and implementation, analysis of data, interpretation of results, write up of this study and editing of the main paper, while the other authors were involved in the design and editing of the main paper. All authors read and approved the final manuscript.

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References

[1] World Health Organization (WHO). General guidelines for methodology on research and evaluation of traditional medicine document. Geneva: World Health Organization, 2000.

[2] Furnharm A. Why do people choose and use complementary therapies? In complementary medicine an objective appraisal. Edited by: Ernst E. Oxford: Butterworth-Heinemann; 1996.

[3] Ernst E. Herbal medicines put into context. Brit. Med. J., 2003:327:881-882.

[4] Tiran D. The use of herbs by pregnant and child bearing women: a risk benefit assessment complement Ther. Nurs. Midwifery, 2003;9:176-181.

[5] Frawley J, Adams J, Sibbrit D, Steel A, Broom A, Gallois C. Prevalence and determinants of complementary and alternative medicine use during pregnancy: results from a nationally representative sample of Australian women. Aust. NZ. Obstet. Gynaceol., 2013; 53(4): 347-352.

[6] Hoist L, Wright D, Haavik S, Nordeng H. Safety and efficacy of herbal remedies in obstetrics-review and clinical implications. Midwifery, 2011:27(1): 80-86.

[7] Nordeng H, Bayne K, Haven GC, Paulsen BS. Use of herbal drugs during pregnancy among 600 Norwegian women in relation to concurrent use of conventional drugs and pregnancy outcome. Complement Ther. Clin. Pract., 2011:17(3): 147-151.

[8] Lapi F. Vannacci A, Moschiri M, Cipollini F, Morsuillo M, Gallo E, Banchelli G, Ceechi E, DiPirro M, Giovannini MG, Cariglia MT, Gori L, Firenzuoli F, Mugelli A. Use, attitude and knowledge of complementary and alternative drugs (CADs) among pregnant women. A preliminary survey in Tuscany. Evid Based Complement Alternat. Med., 2010;7(4)477-486.

[9] Mousally K, Orachi D, Berard A. Herbal products use during pregnancy: prevalence and predictors. PharmaCoepidemiol Drug Saf., 2009; 18(6): 454-461.

[10] Louik C, Gardiner P, Kelly K, Mitchelt AA. Use of herbal treatments in pregnancy. Am Jobstet Gynecol., 2010; 202(5): 439.e431-439.e410.

[11] Gharoro EP, Igbafe AA. Pattern of drug use amongst antenatal patients in Benin City, Nigeria. Med. Sci. Monit, 2000;6(1): 84-87.

[12] Fakeye T.O, Adisa R, Musa I.E. Attitude and use of herbal medicines among pregnant women in Nigeria. BMC Complementary and Alternative Medicine 2009; 9:53-59.

[13] Tamuno I, Omole-Ohonsi A, Fadare J. Use of Herbal Medicine among pregnant women attending a Tertiary Hospital in Northern Nigeria. The Internet Journal of Gynecology and Obstetrics, 2010; 15(2).

[14] Orief YI, Farghaly NF, Ibtahim MIA. Use of herbal medicines among pregnant women attending family health centers in Alexandria Middle East Fertility Society, 2014; 19:42-50.

[15] Mbura JS, Mgaya HN, Heggenhougen HK. The use of oral herbal medicine by women attending antenatal clinics in urban and rural Tsanga district in Tanzania. East African Med. Journal, 1985; 62(8) 540-550.

[16] Tamuno I. Traditional Medicine for HIV Infected patients in Anti-Retroviral therapy in a Tertiary Hospital in Kano, North West, Nigeria. Asian Pac Trop Med; 2011:4(2): 152-155.

[17] Elvin-Lewis M. Should we be concerned about herbal remedies? Journal of Ethnopharmacology, 2000; 75(2-3):141-164.

[18] Drew AK. Safety issues in herbal medicine: Implication for the Health Progression. Med. J. Austr., 1997; 166:538-541.

[19] Conover E.A. Herbal Agents and over the counter medications in Pregnancy: Best practice and Research. Clin.Endor. Met., 2003; 17(2): 237-251.

[20] Becaw J, Maheshwari BSangi-Haphpeykar H. The use during of prescription, over ther counter, and alternative medication among Hispanic women. Birth, 2010; 37(3): 211-218.

[21] Wilkinson JM. Effect of ginger tea on the fetal development of Sprague-Dawley Rates. Reproductive Toxicology, 2000; 160:3141-3143.

[22] Hepner DI, Harnet M, Segal S, Camann W, Bader A, Tsen L. Herbal use in pastueients. Anesth. Analg., 2002; 94(3):690-693.

[23] Broussard CS,Louik C, Honein MA, Mitchel AA, and the National Birth Defects Prevention Study. Herbal use before and during pregnancy. Am. J. ObstetGynecol, 2009; 201-205.

[24] Hollyer T, Boon H, Georgousis A, Smith M, Einarson A. The use of CAM by women suffering from Nausea and vomiting during pregnancy. BMC complementary and Alternative Medicine, 2002; 2:1-6.

[25] Maats F, Crowder C. Patterns of vitamins, mineral and herbal supplement use prior to and during pregnancy. Aust NZJ. Obstet Gynecol., 2002; 42:494-496.

[26] Nordeng H, Harven G. Use of herbal drugs in Pregnancy: a survey among 400 Norwegian women. PharmacoEpidemiol Drug Sad., 2004; 13:371-380.

[27] Tsui B, Denneny C, Tsourcounis C. A survey of Dietry Supplement use during pregnancy at an Academic Medical Center. Am J. Obstet Gynecol., 2001; 185:433-437.

[28] Hemminki E, Mantyranta T, Malim M, Koponen P. A survey on the use of alternative drugs during pregnancy. Scand J. Soc. Med., 1991; 19:199-204.

[29] Wambebe C. Regulatory framework for local production of herbal medicine in Africa BoletinLatinoamericonoy del Caribe de plantas. Medicinales Y Aromaticu, 2009; 8:2-6.

[30] Hoist L, Wright D, Haavik S, Nordeng H. The use of the user of herbal remedies during pregnancy. J. Altern. Complement Med., 2009; 15(7):787-782.

[31] Hoist L, Nordeng H, Honvik S. Use of herbal drugs during early pregnancy in relation to maternal characteristics and pregnancy outcome. Pharmacoepidemiol Drug Saf., 2008;17(2): 151-159.

[32] Foster DA, Denning A, Wills G, Bolger M, McCarthy E. Herbal medicine use during pregnancy in a group of Australian women. BMC Pregnancy and Child Birth, 2006; 6:21.

[33] Nordeng H, Haven GC. Impact of socio-demographic factors, knowledge and altitude on the use of herbal drugs in pregnancy. ActaObstetGynecolScaned 2005; 84:26-33.

[34] Rashmi S, Bhuvneshvar K, Ujala V. Drug utilization pattern during pregnancy in North India. Indian Journal of Medical Science, 2006; 60(7): 277-287.

[35] Moussalhy K, Oraichi D, Berard A. Herbal products use pregnancy: Prevalence and predictors. Pharmaco Epidemiology and Drug Safety, 2008; 42:151-159.

[36] Gibson P, Powrie R, Star J. Herbal and alternative medicine use during pregnancy. A cross sectional survey. Obstet Gynecol., 2001; 97:s44-45.

[37] Henry A, Crowder C. Patterns of Medication use during and prior to pregnancy: the MAP Study. Aust. NZJ. ObstetGynecol, 2000: 40:165-172.

[38] Kennedy DA, Lupattelli A, Koren G, Nordeng H. Herbal Medicine use in pregnancy: Results of multinational study. BMC Complementary and Alternative Medicine, 2013; 13:355.