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Medicinal Plants Used in the Treatment of Antenatal and Postnatal Disorders in Kaduna Southern Guinea Savanna of Nigeria: Empirical Study of Kachia Local Government Area of Kaduna State, Nigeria

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Abstract

Medicinal plant used in the treatment of ante-natal and post-natal disorders in Kaduna Sothern Guinea Savanna using Kachia Local Government Area of Kaduna State as a case studied was investigated. Twenty-five (25) questionnaires were randomly distributed in each of the four (4) wards to make a total of hundred (100) questionnaires. The data collected was analyzed using frequency distribution table and Chi-square (X2). The result Shows that part of the plant species used in preparation of the herbal used in the treatment of ante natal and post-natal disorders include leaves; roots; bark; fruits; leaves and barks; roots and leaves. A total of fourteen (14) plants species belonging to ten (10) families were documented for antenatal while a total of twelve (12) plants species belonging to ten (10) families were documented for post-natal Majority of the herbs are consumed in fresh forms. Crushing is the major (66.0%) method of preparing the herbal /medicine. Also, drinking method is the major (64.0%) method of administration of the herbs/plants. Based on the result, it was further reveals that anemia (26.0%) had major symptoms associated with ante natal while protracted labour (26.0%) was the major symptoms associated with postnatal. Demographic characteristic of the respondents was also examined. The percentage of male was (15.0%) while that of female counter part was (85.0%). majority (41.0%) of the respondents were between 31-40-years age bracket and 73.0% are married and 58.0% of the respondents had qur'anic education while 12.0% had no formal education and majority (42.0%) of the respondents are traditional practioners. Chi-square(X2) analysis revealed that all the independent variable at (P>0.01) probability level the results gave no significant relationship (P>0.01) with the symptom associated with ante-natal and post-natal and the parts of the plant used. However, it is recommended that modernization of health care in Kaduna Southern Guinea Savanna could benefit from integrating aspect of traditional practice and plant used in to health care modernization programme through active involvement of local people. This would also facilitate the implementation of culturally appropriate health care that respect traditional knowledge and contribute to bio-culturally sustainable development of the area.

Keywords: Medicinal Plants; Antenatal; Postnatal; Symptoms; Southern Guinea Savannah

Introduction

Antenatal is the treatment received by a woman during pregnancy while postnatal is the treatment a baby and the mother received immediately after the birth of a child. Postnatal is the period of time in which the mother's body including hormone levels and uterus size returns to a non-pregnant state [1]. Maternal ill health and death impact families, communities and societies and has far reaching effects across socio-economic strata. Lack of skilled and motivated staff as well as inadequate drugs and equipment in health Centre's have been identified as the major factors responsible for maternal and child deaths. These challenges are more in rural areas where about 75% of local people hardly have access to modern facilities [1]. A medicinal plant is any plant which, in one or more of its organs, contains substances that can be used for therapeutic purposes or which are precursors for the synthesis of useful drugs. This description makes it possible to distinguish between medicinal plants whose therapeutic properties and constituents have been established scientifically, and plants that are regarded as medicinal but which have not yet been subjected to a thorough scientific study [2] define medicinal plants used for extraction of pure substances either for direct medicinal use or for the hemi-synthesis of medicinal compounds (e.g. hemi-synthesis of sex hormones from diosgenin obtained from Dioscorea spp.(yams);

The growing importance of medicinal plants can be appreciated from the economic stand point when the following facts are considered [3]:

- Global trade in herbs is over USD 100 Billion per annum
- India and China's medicinal plant trade is about two to five billion US dollars annually
- In Germany, it is over one billion US dollars annually
- Rose Periwinkle which is endemic to Madagascar fetches US$100 million per annum
- China trades in 7,000 species and 700,000 tons of medicinal plants per annum
- India trades in 7,000 species of medicinal plants
- Morocco exports 58.7 tons of medicinal plants annually
- In the last 5 years, sales of medicinal plants doubled in China, tripled in India and grew by 25% in Europe.

The use of traditional medicine and medicinal plants in most developing countries, as a normative basis for the maintenance of good health, has been widely observed [4]. Furthermore, an increasing reliance on the use of medicinal plants in the industrialised societies has been traced to the extraction and development of several drugs and chemotherapeutics from these plants as well as from traditionally used rural herbal remedies [5]. Moreover, in these societies, herbal remedies have become more popular in the treatment of minor ailments, and also on account of the increasing costs of personal health maintenance. Indeed, the market and public demand has been so great that there is a great risk that many medicinal plants today face either extinction or loss of genetic diversity.

However, plant materials have continued to play a major role in primary health care especially in the developing countries. Herbal medicine is the oldest form of health care known to mankind and over 50% of all clinical drugs are of natural products origin and natural products play important roles in drug development in the pharmaceutical industry [6,7]. Traditional medicine has maintained its popularity worldwide, since 1990s, its use surged in many developed countries; interest has increased by researchers on the use of plant medicinally both for traditional uses and as potential new source of drugs and treatment. Many plant synthesis substances are useful in the maintenance of health on man and other animals. These include aromatic substance most of which are phenol and their oxygen substituted derivate, such as tannin, many are secondary metabolites [8,9]. Apart from providing substance medicine, medicinal plants are also items of trade providing employment and income to indigenous people in Nigeria [10]. The use of plant during pregnancy is a common practice in Africa, medicinal plants play a significant role during pregnancy, birth and post-partum care in many rural areas of the world [11,12]. Plants play an important role in recovery during the postpartum period in diet and traditional medicine [13,14]. Despite modern antenatal prescriptions, women use traditional well knows recipes to secure pregnancy, facilitate the delivery after childbirth but also to have a beautiful baby [12].

Medicinal plant plays a significant role during pregnancy, birth and postnatal care in many rural areas of the world. Although available literatures parade an avalanche of published materials on medicinal plants and claims of their efficacies in the treatment of various ailments, little has focused on medicinal plants used in the treatment of antenatal and postnatal disorders in parts of Kaduna Southern Guinea Savanna of Nigeria. The emphasis on the use of medicinal plants had hitherto been placed on the treatment rather than prevention of diseases. A World Health Organisation (WHO) Expert Group defined Traditional Medicine as the sum total of all knowledge and practices, whether explicable or not, used in diagnosis, prevention and elimination of physical, mental, or social imbalance and relying exclusively on practical experience and observation handed down from generation to generation, whether verbally or in writing

[15]. For Africa, this may be extended further by including an expression, such as 'while bearing in mind the original concept of nature which includes the material world, the sociological environment whether living or dead and the metaphysical forces of the universe'.

Therefore, the objective of this study was to assess the different plants used in the treatment of ante-natal and post-natal disorders in Parts of Kaduna Southern Guinea Savanna using Kachia Local Government as a case study. Interest has increased by researchers on the use of plant medicinally both for traditional uses and as potential new source of drugs and treatment. This research was therefore significant in creating a data base for the plant and herbs used in the treatment of antenatal and postnatal disorders in Kaduna State.

Materials and Methods

Study Area

The study was conducted in parts of Kaduna Southern Guinea Savanna of Nigeria using Kachia Local Government as a case study. Kachia Local government as a land area of about 4,632km^2 with a projected population of 244,274 thousand people [16]. It lies between latitude 6^o 12^{1}North and longitude 7^{o}96^1 East. It was bounded with Chikum Local Government Area from the North, Niger State from the West, Capital Territory (F.C.T) Abuja, Plateau State and Jaba Local Government Area from the South and Zangon kataf Local Government Area from the East. It was situated in the Southern Guinea Savannah. The average annual rainfall is 170mm usually from May to October. The major ethnic group in the study area is Kadara, Jaba, Bajju and Kuturmi while the minor ethnics groups are Hausa, Yoruba, Igbo and Fulani. Religion practices in the area include Islam, Christianity and Traditional worshippers [17].

Data Collection and Sampling Techniques

Primary data was used for this study. The primary data was collected using a well-structured questionnaire. Twenty-five (25) questionnaires each were randomly distributed among the target respondents in each of the four (4) wards of the study area to make a total of One hundred (100) questionnaires in all. The questionnaire was administered to target respondents in each ward as follows: women (10), traditional practitioner (10) and herb sellers (5). The questionnaire was designed in English language and administered by group of interviewers who could speak and write in local dialects. Face-to-face method of interviews was adopted.

Data Analysis

The following statistical tools were used to analyze the data collected:

- **Descriptive statistic**

Descriptive statistic such as percentages, frequency distribution tables are used to analyzed the data.

- **Chi square (X^2) Analysis**

This was used to determine the significant relationship between personal characteristic such as age, marital status etc. with the common ailments associated with ante-natal and post-natal disorder at ($P<0.01$).

$$X^2 = \frac{\sum (0 - E)^2}{E}$$

Where: X^2 = Chi square (X^2)
O = Observed frequency
E = Expected frequency

Results and Discussion

Demographic characteristic of Respondents

Some demographic characteristics of the respondents were known to influence medicinal plant used in the treatment of ante natal and post-natal disorder in Kachia Local Government Area of Kaduna State. The variable analysed in this study include: Sex, Marital Status, Age, Education Status, Occupation and Household Size.

Table1 shows that most of the respondents in the study area were female which are 85.0% and then male 15.0%. This implies that female is more involve in the treatment of antenatal disorder than their male counterpart. Majority (73.0%) of the respondents were married while 9.0% are single. 41% of the sampled respondents were between the ages brackets of 31-40 years. This implies that they were at the middle and economically active age. With 31% having household size of 11-20. Majority (42%) of the respondents were traditional practitioners and 44% of sampled respondents had Quranic education, 26.0% had secondary education, 15.0% had Higher level education,12.0% had no formal education and 3.0% had primary education. This implies that the result is in consonance with the work of Sodimu AI, et al. [18] that formal education has positive influence on uses of medicinal plants in preventing and curing of diseases

S/N	Variable	Frequency	Percentage
1	**Sex**		
	Male	15	15
	Female	85	85
2	**Marital Status**		
	Single	9	9
	Married	73	73
	Divorce	15	15
	Widower	3	3
3	**Age**		
	20-Nov	4	4
	21-30	18	18
	31-40	41	41
	41-50	27	27
	51-6	8	8
	>70	2	2
4	**Occupation**		
	Herb seller	23	23
	Traditional practitioners	42	42
	House wife	35	35
5	**House Hold Size**		
	<10	58	58
	20-Nov	31	31
	21-30	7	7
	31-40	1	1
	>41	3	3
6	**Educational Status**		
	Non formal	12	12
	Quranic	44	44
	Primary	3	3
	Secondary	26	26
	Higher level	15	15
	Total	**100**	**100**

Table 1: Demographic Characteristic of Respondents.

Parts of the Plants used for the Treatment of Antenatal and Postnatal Disorder

Table 2 shows that majority of the respondents use combination of root and bark which account for 28%; bark 13%; combination of bark and leaves 21%; Root 7%; combination of leaves and Root 12%; combination of root, leaves and bark 4%; root 7% while lastly combination of leaves and fruit 1%. The results are in contrast with the work of Chima UD, et al. [7] in which majority of the respondent's uses leaves, while on the other hand, it is in agreement with the work of Kaingu CK, et al. [19] where the majority of the sampled respondents uses root alone. However, the table also revealed that majority (77%) of the respondent's uses fresh plants parts in treating and prevention of ailments while the minority (23%) uses it dried.

Variable	Frequency	Percentage %
Part of the plant used		
Bark	13	13
Bark and Leaves	21	21
Leaves	9	9
Leaves and Fruit	1	1
Leaves and Root	12	12
Root	7	7
Root and Bark	28	28
Status of the Plant Parts		
Dried	23	23
Fresh	77	77
Total	**100**	**100**

Table 2: Responses According to the part of the Plant used for the Ailment.

Methods of Preparation and Administration of the Herbal Plants

Table 3 shows that majority (66%) of the respondents uses crushing methods in the preparation of their herbal, closely followed by grinding method (26%) while the minority (7%) stick to squeezing and lastly,1% uses pounding Methods. The result is in consonance with the work of Sodimu, et al. who reported that crushing and grinding methods are one of the best methods that can be used in preparation of herbal medicine efficiently. The table further elucidate mode of administration of the herbal during the antenatal and postnatal in which 64% of the sampled respondents preferred drinking method and 28% uses bathing method. Others include: Drinking and Bathing (7%) and lastly drinking and inhaling (1%).This observation is in agreement with the work of Bello MI, et al. and Ogunkalu OA, et al. [20,21] who reported that major administration of herbal for efficiency is through oral (drinking) and Sodimu AI, et al. [22] reported that drinking is the best method of herbal administration and measurement should be through the use of tea spoon, table spoon or small cup called "gasi' as a standard of measurement when drinking.

Variable	Frequency	Percentage
Method of Preparation		
Crushing	66	66
Grinding	26	26
Pounding	1	1
Squeezing	7	7
Mode of Administration		
Bathing	28	28
Drinking	64	64
Drinking and Bathing	7	7
Drinking and Inhaling	1	1

Table 3: Method of Preparation and Administration of the Herbs/ Plants.

Symptoms associated with Antenatal and Postnatal Disorder

Table 4 shows that majority (26%) of the respondents during ante natal are always faced with the problem of anemia closely followed by fatigue and vomiting which accounting for 19%, Lack of appetite (16%), High blood pressure (13%), Miscarriage and Vaginal bleeding are both 10% while the

least disorder during the antenatal is ectopic pregnancy which account for 6%.While during the Post-natal the major (26%) disorder faced by the respondents is protracted labour which is closely followed by delayed placenta delivery and Softness of core of baby's head (20%) respectively. Others include Hemorrhage (14%) while the least are Breast lump and Umbilical wound and both accounts for 7% each. The results are in agreement with works of De Boer H, et al. and Djah FM, et al. [11,12] who observed that anemia is one of the major disorder faced by women during antenatal.

S/N	Variable	Frequency	Percentage %
A	**Antenatal Disorders**		
	Lack of appetite	16	16
	Anemia	26	26
	Fatigue& vomiting	19	19
	Ectopic Pregnancy	6	6
	Miscarriage	10	10
	Vaginal Bleeding	10	10
	Hemorrhage	14	14
B	**Post Natal Disorders**		
	Breast lump	7	7
	Delayed placenta delivery	20	20
	Umbilical cord	7	7
	Softness of core of baby's head	20	20
	Protracted labour	26	26
	Total	100	100

Table 4: Respondents to symptoms associated with Antenatal and Postnatal Disorders.

Relationship between symptom associated with Ante-natal and Post-natal ailment and the parts of the plant use in the treatment of the ailments

The Chi-square (X^2) result in Table 5 shows that there is no significant (P<0.01) relationship between the symptom associated with ante-natal and plant parts use as well as symptom associated with post-natal and the plant parts used. The implication of this is that all the plant parts (leaves, stem/bark, roots, and flowers and so on) are efficient in treating and preventing common disorders associated with ante-natal and post-natal symptoms. This observation is in consonance with the work of Djah FM, et al. Abubakar MK [12,9] who reported that all plant parts are efficient in herbal preparation in prevention and treatment of various diseases.

S/No	Variable	N	X^2	Df	fcat	Ftab	Remark
1	Ailments of Antenatal versus parts of the plant used	100	120.224	66	0	158.57	No sig
2	Ailments of Postnatal versus parts of the plant used	100	124.551	55	0	45.33	No sig

Table 5: Chi-square(x_2) table comparing the relationship between symptoms associated with Ante-natal and Post-natal ailment and the parts of the plant use in the treatment of the ailments.

Selected Demographic Characteristic versus common Ailments associated with Post-natal and Ante-natal

The Chi-square (X^2) result in Table 6 shows that the variable of demographic characteristics (sex, marital status, Age and Education) tested revealed that all the independent variables gave no significant (P<0.01) relationship with the ailments associated with ante-natal and post-natal in Kachia Local Government Area of Kaduna State. The result is in disagreement with the work of Abubakar MK [9] who reported that demographic characteristic as significant effect on common ailments.

Variable	N	X^2	df	Fcal	ftab	Remark
A						
Post-natal						
Sex	100	9.916	5	0.78	1.145	Not sig
Marital Status	100	15.965	15	0.384	7.261	Not sig
Age	100	28.145	25	0.301	14.611	Not sig
B						
Ante-natal						
Sex	100	5.229	6	0.515	1.635	Not sig
Marital Status	100	32.959	18	0.017	9.39	Not sig
Age	100	40.054	30	0.104	18.493	Not sig
Education Status	100	32.861	24	0.107	13.848	Not sig

Table 6: Demographic Characteristics Versus Common Ailments associated with Post-natal and Ante-natal.

Medicinal Plants used During Postnatal Care

Table 7 shows that a total of twelve (12) plants species belonging to ten (10) families were documented for post-natal care in the study area. Zingiberaceae and Curcurbitaceae as the highest number of species (2 each) whiles the others have one (1) each. However, most of the plants species used are herbs.

S/N	Family	Scientific Name	Parts Used	Types of Plant
1	Zingiberaceae	*Zingiber officinate Roscoe*	Rhizome	Herb
2	Zingiberaceae	*Curcuma longa .L*	Rhizome	Herb
3	Aarecaceace	*Phonenix dactylifera*	Dates	Fruit tree
4	Myrtaceae	*Syzygium aromaticum L*	Flower bud	Shrub
5	Cucurbitaceae	*Citrullus lanatus L*	Seed	Climber
6	Cucurbitaceae	*Luffa aegyptiaca*	Fruit	Climber
7	Mimosaseae	*Acacia leucocephala*	Resin	Tree
8	Amaryllidaceae	*Allium sativum L.*	Bulb	Herb
9	Lamiaceae	*Gossypium arborea Roxb. L.*	Pod	Shrub
10	Arecaceae	*Cocos nucifera L*	Fruit	Tree
11	Pedaliaceae	*Sesamum indicum L.*	Seed	Herb
]12	Piperaceae	*Piper nigrum L.*	Fruit	Herb

Table 7: Medicinal Plants used During Postnatal Care.

Medicinal plants used during Antenatal care

Table 8 shows that a total of fourteen (14) plants species belonging to ten (10) families were documented for ante-natal care in the study area. Anacardiaceae and Malvaceae as the highest number of species (3 each) whiles the others have one (1) each. However, most of the plants species used are shrubs.

S/N	Family	Scientific Name	Parts Used	Types of plant
1	Acanthaceae	*Diciptera laxata*	leaves	shrub
2	Amaranthaceae	*Amaranthus lividus.L*	Leaves	shrub
3	Anacardiaceae	*Rhus vulgaris*	Root	shrub
4	Asteraceae	*Scenecio discifolius oliv*	Leaves	Shrub
5	Bigoniaceae	*Kigelia africana*	Leaves	Tree
6	Asteraceae	*Vernonia amygdalina Del.*	Bark/leaves	Shrub

7	Anacardiaceae	*Mangifera indica L.*	Bark	Tree
8	Anacardiaceae	*Anacardium occidentale L.*	root	Tree
9	Clusiaceae	*Garcinia buchananii Bak.*	Bark	Tree
10	Malvaceae	*Abelmoschus esculentus L.*	Fruit	Shrub
11	Malvaceae	*Sida cunefolia Rob.X*	Leaves	Shrub
12	Malvaceae	*Hibiscus sabdariffa*	fruit	shrub
13	Tiliaceae	*Corchorus ollitarius L.*	Leaves	Shrub
14	Amaryllidaceae	*Allium sativum L.*	Bulb	Herb

Table 8: Medicinal Plants used During Antenatal Care.

Conclusion and Recommendation

Conclusion

Women in Southern Guinea Savanna of Nigeria widely use nutri-medicinal plants in the management of common ante-natal and post- natal disorders. Medicinal plants used during the ante-natal are for child development and good health among others while during the post -natal the medicinal plants used to relieve postpartum pain, reduce postpartum hemorrhage, increase flow in breast milk production and so on. However, observing a period of confinement for the mother and newborn infant is common during which a variety of treatment are practice, such as drinking herbal decoctions, inhaling, eating, bating and incision.

Recommendation

Modernization of health care in Southern Guinea savanna could benefit from integrating aspect of traditional practice and plant use into health care modernization programmed through active involvement of local people. It would facilitate the implementation of culturally appropriate health care that respect traditional knowledge and contribute to bio-culturally sustainable development. In addition, there is a need for ethnobotanical research into assimilation with mainstream culture increase. Research focusing on traditionally ignored women health care is scarce and general ethnobotanical studies often overlook the variety and relative important of plant use in women health care with a few suitable exceptions. However, further research focusing on the bio-availability of nutrients, efficacy and safety of the medicinal plants used by women should be done. Also, research into pharmacological mechanisms of these treatment, that are both ancient and modern, could provide insights that could help to augment and improved local and western postpartum care.

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