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Preliminary investigation of herbs used in paediatric care among the people of Akwa Ibom State, Nigeria

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ABSTRACT

An investigation into herbs used in paediatric care among the people of Akwa Ibom State was carried out using a structured questionnaire. A total of 50 respondents in 10 Local Government Areas were interviewed. These included 15 herbalists, 12 health workers, 10 traditional birth attendants and 13 farmers. A total of 32 males and 18 females were interviewed. 42 different plant species in 24 families were collected, identified and stored. These plants are used for ailments in children such as; penfigures, cough, diarrhoea, ear infection, jaundice, fever, stomach pain, heat, bedwetting, skin infection, chicken pox, swollen scrotum, convulsion, problems with the spleen, care of the umbilical cord and navel, skin rashes, measles, nose bleeding, scalp sores, pile, ringworm, teething problems, asthma, sickle cell disease, delay in walking. The plant parts used, time and mode of collection, mode of preparation and administration have been documented. A further investigation into the efficacy of these claims is recommended.

Keywords: Herbs, paediatric, ailments, Akwa Ibom State.

INTRODUCTION

Man has over time depended on plants for survival particularly for food and medicinal purposes. He acquired the knowledge of the usefulness of plants by trial and error and passed on the information from generation to generation and in our environment mostly without documentation. As a result most of the indigenous knowledge is lost over time. [1], noted that the knowledge of useful as well as harmful plants became accumulated and enriched through generations with some refining and additions.

Among the people of Akwa Ibom State the practice of young mothers being guided in the care of their new born babies (and even older children) by aged /older women after delivery is a common practice. These women armed with herbal knowledge handed down to them go on to tutor the new mothers on what herb to use, how to prepare and administer same. According to [2], there are quite a number of plants used by local people for various problems in children.

The medical care of infants, children and adolescents in medicine is referred to as paediatrics [3]. It differs from adult medicine in many ways. The differences include body size, physiological, congenital defects and developmental issues. These are of greater concern in paediatrics than in adult medicine [4].

Herbal remedies have been used over time in children even among educated parents, with apparent success. [5], observed that giving children herbal remedies can be helpful in maintaining health and preventing illness, that it is useful for both acute and chronic conditions. According to him, using herbs for children requires observation and good judgement. [6] also noted that it is vital to know the actions and possible side effects of herbs before giving it to a child even though according to him, it is rare for children to show sensitivity to a particular herb.

As common as the practice of using herbal remedies in children is, little or no documentation exists of these herbs, their identification, mode of collection, preparation and administration among the people of Akwa Ibom State. This work therefore attempts to do that in order to provide baseline information for further investigations.

MATERIALS AND METHODS

The investigation was carried out in 10 Local Government Areas in the North and South Eastern parts of Akwa Ibom State.

A structured questionnaire was used for the investigation and was administered to respondents in the study area.

The drug plants were collected by rooting up or cutting twigs during collection trips, and the voucher specimens of authenticated samples were deposited in the University of Uyo Herbarium.

RESULT

The investigation was carried out in Uyo, Ikono, Ibiono, Itu, Uruan, Abak, Obot Akara, Ikot Ekpene, Oron and Okobo Local Government Areas of Akwa Ibom State. 50 respondents were interviewed using a structured questionnaire. 30% of these were herbalists, 24% were health workers, 20% were Traditional Birth Attendants and 26% were farmers. 64% of the respondents were male while 36% were female. The age range of the children for which the herbs are administered was from 1 week to 5years old.

The data obtained in this work, the list of plants used and the various paediatric ailments they are used for are all summarised in Tables 1 to 7.

DISCUSSION

A total of 50 respondents were administered with the structured questionnaire. It was found that many traditional medicine practitioners were rather unwilling to divulge information on medicinal plants used in the cure of ailments found in children. Besides not so many people had much knowledge on herbs used in paediatric care among the populace. In this investigation as seen in Table 1, only 30% of the respondents were herbalists while others were farmers (26%), Health Workers (24%) and Traditional Birth Attendants (20%).

Table 1: Occupation of respondents

S/N	OCCUPATION	NUMBER	PERCENTAGE
1	Herbalists	15	30
2	Health Workers	12	24
3	Traditional Birth Attendants	10	20
4	Farmers	13	26

[7], observed that in Africa, at least 70% of health-care providers are Traditional Medicine Practitioners (TMPs) who are generally called herbalists. It was interesting to note the number of health workers who in spite of being agents of orthodox medicine still resort to the use of herbs in treating ailments in children. [8] commented that local people are still dependent on plant resources for various things such as food , medicine, shelter etc.

Table 2: Age of Respondents

Age Range	No. Of Respondents	Percentage Value
30 – 35	4	8%
36 - 40	3	6%
41 - 45	2	4%
46 - 50	8	16%
51 - 55	8	16%
56 - 60	14	28%
61 and above	11	22%
TOTAL	50	100%

In Table 2, 28% of the respondents were between 56-60 years. That more of the respondents were about 60 years of age shows that the indigenous knowledge on herbs used in paediatric care among Akwa Ibom people is lacking in younger generations.

Table 3: Qualification of the Respondents

Basic Qualification	No. Of Respondents	Percentage
NONE	25	50%
FSLC	2	4%
SSCE	7	14%
OND	8	16%
NCE	4	8%
HND	4	8%
TOTAL	50	100%

In Table 3, 50% of the respondents had no formal education. Only 8% had up to the Higher National Diploma (HND). Without formal education, most of the indigenous knowledge had been passed on orally without documentation. The knowledge of many useful plants has been lost over the years, and in an era when chemical drugs are failing and have been found to have harmful side effects, it is expedient that more documentation of indigenous knowledge be done in order to conserve such knowledge for future use. [9] noted that in earlier days most naturally occurring drug plants were obtained in the wild and that the collectors were mostly uneducated and unskilled local people.

In Table 4, different plant parts were observed to be used in the herbal formulations. They included leaves 70%, roots (12%), fruits (10%), the whole shoot (4%), flowers and seeds (2%) each. [10], observed that leaves were used more often in formulation of herbal remedies used by Traditional Birth Attendants in Akwa Ibom State than other plant parts. They also observed that

herbal remedies administered to pregnant women by TBAs were more often given orally as drinks.

Table 4: Percentages of Plant Parts used

Plant Part used	No. Of Samples	Percentage use of the plant part
Roots	6	12%
Leaves	35	70%
Flowers	1	2%
Seed	1	2%
The whole shoot	2	4%
Fruit	5	10%
TOTAL	50	100%

Table 5: Routes of Administration of the herbal Preparations

Route of Administration	No. Of times used	Percentage usage of the route
Oral	16	32%
Topical	14	28%
Enema	19	38%
Inhalation	1	2%
TOTAL	50	100%

The routes of administration of the herbal drugs in this investigation as seen in Table 5, included oral (32%), topical (28%), enema (38%) and inhalation (2%). Most of the herbal remedies were administered through enema. According to [11], herbs are usually made into preparations in order to ease their administrations, increase the concentration of active ingredients and possibly aid in preservation.

Table 6: Ailments, Plants used, Mode of Preparation and Administration of the Herbal Remedies

Ailments	Plants used	Mode of preparation	Dosage / Mode of Administration
		Leaf extract is mixed with palm oil	
Penfigures	*Acanthus montanus (Mbara ekpe)*	Bones of pigs are burnt, ground with the leaves, mixed with white clay called 'ndom' locally	Rubbed topically on the whole body twice daily for 2 days.
	Eremomastax polysperma (edemididuot)	The leaf extract is mixed with white clay The leaf juice is obtained by squeezing. The leaf is pounded and soaked in water 2 leaves are heated with potash and some salt before squeezing out the juice	The mixture is applied topically on the affected parts twice daily for 2 days.
	Ocimum canum(iko)	**Mode of preparation**	The mixture is applied topically on the affected areas.
Cough	*Justicia schimperi (mmeme)*	The leaves were squeezed and soaked in water and filtered. Some salt is added to the fruit juice in a bottle and shaken before administration	10mls of the juice is given 2 times a day.
	Gongronema latifolium (utasi)		10mls is given 3 times daily.
	Bryophyllum pinnatum (ndodop)		10mls are given 3 times daily
			Dosage/ mode of

			Administration
Ailment	**Plant used**		
			5mls is given 3 times daily
	Hibiscus surattensis (afad iban)		10mls is given twice daily for 3 days.
	Citrus aurantium (ntom)		
Diarrhoea	*Achyranthes aspera* (udok mbiot)	The leaves are crushed or ground with paw-paw leaves and mixed with water and filtered.	200ml is given as enema.
	Laportea ovalifolia	The leaves are crushed or pounded and mixed with water and filtered.	150ml is given as enema.
Lateness in walking	*Gongronema latifolium(utasi)*	Root poultices and extracts are rubbed all over the body with special attention to the joints.	This is done 2 times daily.
		The roots are ground, mixed with water and filtered.	200mls is administered as an enema.
	Lasianthera africana(editan)	The leaves of both plants are crushed, mixed with water and filtered.	200mls is given as enema
	Scoporia dulcis (ndiyan ession) and Oldenlandia corymbosa (edeme unen)	The leaf is pounded and mixed with some water	.
		The leaves are crushed between the palms to extract the juice.	100mls is given as enema
	Plumbago sp.(afehe ntok)	-same-	2 drops are put into the affected ear.
Ear ache	*Ageratum conyzoides (nkong ifuo ayen)*	-same-	-same-
		The leaf is ground /pounded mixed with water, and filtered.	
	Cleome ciliata (mininyong ntokoyen) *Aspilia africana(edemerong)*	An unripe, mature paw-paw fruit is peeled, the seeds removed, sliced and cooked with slices of unripe pineapple and some lemon grass in 2 litres of water.	200mls is given as enema. 10mls of the cooled concoction is given 2 times daily.
		Mode of Preparation	
Jaundice	*Carica papaya (po-po)*	A decoction of the root is obtained.	
		The plant is crushed and the juice extracted in some water.	**Dosage/ Mode of Administration** Given whenever thirsty for 3 days.
	Plant used		
	Lonchocarpus griffonianus (ududu)		The juice is rubbed lavishly over the child to bring down the temperature.
Ailment		The leaves are pounded with leaves of *Ocimum basilicum* and mixed with water and filtered.	150ml of the extract is also given as enema.
	Emilia sonchifolia (utimense)	The whole plant is pounded and mixed with exudate from the pith of cut, fermenting plantain culms (mmong ndop ukom).	200mls is given as an enema.
Heat / Fever		The leaf is crushed to obtain the juice	The mixture is poured all over the child. 150mls of the mixture is also given as enema.
	Vernonia amygdalina (etidot)		

	Ipomoea sp.(ufuk ikot)	The leaves as well as those of *O. basilicum* are crushed and mixed with some water, filtered and stored in the refrigerator.	The juice is poured all over the child to bring down the temperature and prevent convulsion.
	Solenostemon monostachyus (ntod ikwod)	The leaves are ground with 4 seeds of *Garcinia kola* and mixed with water 3-7 male strobili are obtained from the male plant. The plant is pounded, mixed with water and filtered.	100mls is given 2 times for 4 weeks.
	Vernonia amygdalina (etidot)	The flowers and leaves are crushed and mixed with water **Mode of Preparation**	200ml of the extract is given as enema
		The leaf juice is obtained by squeezing after lightly heating the leaves.	The child eats the srobili for as long as is required.
Bedwetting			100ml is given as enema.
	Ocimum basilicum (ntong)	The leaves are crushed to obtain the juice.	200ml of the extract is given as enema
		-same-	
	Gnetum africanum		**Dosage / Mode of Administration**
	Costus afer (mbritem)	The leves and young twigs are cooked and the extract obtained.	The juice is dropped on the baby's umbilical cord.
	Spilanthes filicaulis (ntuen ntokeyen)	Leaves are boiled and the extract obtained.	-Same-
Enlarged spleen (ikpakub)	**Plants Used**		
	Bryophyllum pinnatum (ndodop)		The leaf juice is poured all over the body of the child
Stomach ache		The root is boiled and the extract is used	The child is bathed with the extract 2 times daily for 3 days.
Ailment	*Cucurbita pepo (ndise)*		The extract is used to bathe the child 2 times daily
	C. pepo		The child is also served the extract as a herb tea.
Treating the umbilical cord			The extract is used in preparing food for the baby
	Acalypha fimbriata (okokonyin)		
	A. torta		
Chicken pox			
Skin rashes / Inections	*Senna alata (adaya okon)*		
Convulsion	*Phyllanthus amarus (oyomo k' íso aman*	The leaves are crushed with the leaves of *Solenostemon monostachyus* and mixed	100ml is given as enema

	k'edem)	with some water.	
		The leaf juice is obtained after crushing and diluted with some water.	10ml is given the child to drink 2 times daily for 2 days.
	Ipomoea involucrata (mkpaefiang)	The leaf juice is obtained by squeezing. It is then mixed with palm kernel oil (mmanyang).	
	Ocimum basilicum		The mixture is rubbed all over the body of the child.
			10ml of the mixture is also given the child to drink 3 times daily for 3 days.
		The tuber is cut in pieces, boiled and filtered.	
			About 150ml of the extract is given as enema.
Measles	*Icacina trichantha (Efik isong)*		White clay is also mixed with some of the extract and rubbed on the body of the child.
		The leaves are crushed, mixed with water and filtered.	
			About 50ml is given as herb tea to the child 2 times daily for 2 weeks.
		The whole plant is crushed, mixed with water and filtered.	
	Ixora coccinea (izora)	The leaves are crushed along with 5 palm fruits, mixed with warm water and filtered.	About 100ml is given as enema.
		The leaves are crushed between the palms.	About 100ml are given as enema.
	Talinum triangulare (mmong mmong ikong)	The lime juice is squeezed out into a bottle. Some honey is added to the juice.	Crushed leaves are used to scrub the affected body part.
	Heinsia crinita (atama)	The leaves are crushed between the palms.	About 10ml is given to the child 2 times a day for 5 days.
	Spermacoce verticillata (abia-ikanna)	Dried maize stalk and kernel from *Raphia vinifera* are burnt , ground with the leaves and mixed with water.	
Ringworm	*Citrus aurantifolia (Nkpri-sokoro)*	Leaves are dried , ground with the seed and mixed with some native black soap.	Crushed leaves are used to scrub the sores
Teething		Some hot water is poured onto the mixture. Fresh leaves of Baphia nitida are used to scoop some of the mixture before	.About 200ml is given as enema.
	Sida corymbosa (udod ibaan idip)		
Head sores	*Baphia nitida (afuo)*	applying it to the anus..Leaf juice is also obtained from fresh leaves..	About 150 ml of the dried leaf mixture is given as enema
Pile		**Mode of Preparation**	
	Eryngium foetidum (nkong ekpo)	A decoction of the root is obtained	Juice from fresh leaves are given to the child to drink right after application of the first mixture.
		The seed is ground and soaked in water	This is given for 1 week

		The fruit is squeezed to obtain the juice.	
		The orange juice is mixed with egg yoke and about 10ml of honey.	**Dosage/ Mode of Administration**
		The leaves are crushed between the palms	About 10ml is given daily to drink for 1 week.
			About 150 ml of the filtrate is given as enema
	Plants Used		
Aiment	*Lonchocarpus griffonianus (odudu)*		About 10ml is given the child to drink 2 times daily for 2 days.
Enlarged scrotum	*Garcinia kola (effiat)*		About 10ml of this is given to the child 4 times a week for 2 months
	Citrus aurantifolia (mkpri sokoro)		The child is made to inhale the scent from the crushed leaves.
Asthma	*Citrus sinensis (sokoro)*		
	Ocimum canum (iko)		
Sickle cell disease			
Nose Bleeding			

As seen in Table 6, 23 common ailments in children from birth to 5 years are listed. These are said to be treated with herbal remedies by the respondents in the study area. They included Penfigures, cough, diarrhoea, earache, jaundice, Heat/fever, lateness in walking, bedwetting, enlarged spleen, stomach ache, care of the umbilical stump, chicken pox, skin rashes/ infections, convulsion, measles, ringworm, teething, head sores, pile, enlarged scrotum, asthma, sickle cell disease and nose bleeding. The mode of preparation of the herbal remedies and dosage of the administration are also documented. [12] recommended *Aloe vera*, horsetail, hops, wild yam, willow bark and calendula as herbal remedies to treat skin irritations in children

Table 7: Plant family, species, part used and mode of collection.

Plant Family	Plant species	Plant part used	Mode of collection
ACANTHACEAE	*Acanthus montanus*	Leaves	By cutting
	Eremomastax polysperma	,,	,,
	Justicia schimperi	,,	,,
AMARANTHACEAE	*Achyranthes aspera*	,,	,,
ASCLEPIADACEAE	*Gongronema latifolium*	,,	,,
ASTERACEAE	*Ageratum conyzoides*	,,	,,
	Aspilia africana	,,	,,
	Emilia sonchifolia	,,	,,
	Spilanthes filicaulis	,,	,,
	Vernonia amygdalina	,,	,,
CAESALPINIACEAE	*Senna alata*	Roots	By uprooting

CARICACEAE	*Carica papaya*	fruits	Picking the fruits.
CLUSIACEAE	*Garcinia kola*	Seed	By harvesting
CONVOLVULACEAE	*Ipomoea involucrata*	Leaves	By cutting
	Ipomoea sp.	The stem and leaves	,,
COSTACEAE	*Costus afer*	The stem	,,
CRASSULACEAE	*Bryophyllum pinnatum*	Leaves	,,
CUCURBITACEAE	*Cucurbita pepo*	,,	,,
EUPHORBIACEAE	*Acalypha fimbriata*	,,	,,
	A. torta	,,	,,
	Phyllanthus amarus	,,	,,
ICACINACEAE	*Icacina trichantha*	Root	By uprooting
	Lasianthera Africana	,,	,,
LAMIACEAE	*Ocimum basilicum*	Leaves	By cutting
	O. canum	,,	,,
	Solenostemon monostachyus	,,	,,
MALVACEAE	*Hibiscus surattensis*	,,	,,
	Sida corymbosa	,,	,,
PAPILIONACEAE	*Baphia nitida*	,,	,,
	Lonchocarpus griffonianus	Roots	By uprooting
PLUMBAGINACEAE	*Plumbago sp.*	Leaves	By cutting
PORTULACACEAE	*Tailinum triangulare*	Stem and leaves	,,
RUBIACEAE	*Heinsia crinita*	Leaves	,,
	Spermacoce verticillata	,,	,,
	Ixora coccinea	,,	,,
RUTACEAE	*Citrus aurantifolia*	Fruits	Harvesting
	Citrus aurantium	,,	,,
	Citrus sinensis	,,	,,
SCROPHULARIACEAE	*Scoporia dulcis*	Leaves	By cutting
UMBELLIFERAE	*Eryngium foetidum*	,,	,,
URTICACEAE	*Laportea ovalifolia*	,,	,,

In Table 7, a total of 42 plant species in 23 families have been identified and documented for further investigation into their usefulness as claimed by the respondents in this work. The family Asteraceae had the highest number of plant species used in formulating herbal remedies for paediatric care. This could be because of the availability of members of this family in the environment.

In concluding, this work has been a preliminary documentation of common paediatric ailments among children from birth to 5 years in parts of Akwa Ibom State. 42 plants used in formulating herbal remedies for these ailments have been collected, identified and stored and some cultivated. According to [13], in our modern world, there are potentially thousands of plants which have yet to be seen in our local markets and many of these species are more nutritious and flavourful. The mode of collection, preparation and administration of these drug plants have also been documented for posterity. It is very certain that with the recent improvement in health care delivery for children in the state by the current administration, the knowledge of the usefulness of these plants will soon be lost since there would be no need for herbal remedies which are often seen as handy and inexpensive.

Further investigation is ongoing to cover all the Local Government Areas in the state in order to obtain a comprehensive data base. These findings form a basis for pharmacological investigations.

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