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Practice of Ethno-Medicine for Abortion and Anti-fertility among Tribals of Chhattisgarh

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Abstract: India is a habitat of large number of indigenous tribals' people. They are known as by their simple but unique life style. Inspite of their tradition, culture and identified social organisation, they have tremendous knowledge of herbal plants and its medicinal values. In many tribals communities' sterilization is prohibited but they maintain birth between children by specific anti-fertility and abortificiant herbal medicine.
*Objective***:** By above background the aim of the research study is to find out the reasons by which traditional method of abortification and sterilization are prevalent among tribals' communities, and to explore their knowledge about herbal plants which they used for antifertility and abortion.
Methodology and Study Area: The method of data collection is based on secondary literature review and field work. Some selective tools like questionnaire, structured and semi structured schedule, focus group discussion had been used for acquiring data and knowledge from women, herbal healers and knowledgeable persons separately. In tribals' areas, lots of state and central government programmes are working but the local people are not availing benefit from the institutions. So, typical tribals dominating block Bastar, Chhattisgarh, is selected for study.
*Result***:** The finding of the study reveals that the prevalence of poor institutional facility in tribals' areas and superstitious believe on herbal healers, are the main reasons for the practicing of anti-fertility and abortificiant herbal medicine. The illiterate tribals have knowledge about the herbal plants but they don't know about the pathological values and its effects on the patients. Sometimes this partial knowledge create dangerous for patients' health.
Conclusion: Herbal plant diversity is abundantly found in the forest of Bastar which needs to specify their medicinal uses and productive utilization. In this paper specific antifertility and abortificiant plants are documented. Thus, plant drugs used in the tribals and rural areas deserves detailed studies. The efficacy and safety of most of the traditional remedies of the tribals are required to be subjected to scientific verification particularly in chemical investigation.
Key Words: Abortificiant, Antifertility, Herbal Plant Diversity

Introduction

According to Sample Registration System Reports 2012; more than 1.2 billion people live in India, approximately 26 per cent (328 million) of them are women of Reproductive age (15-49 year). In India women have an average of 2.4 births in their lifetime. Provisional government figures estimate that 621, 748 abortions were performed in 2011-2012, and the number increased slightly to 636, 306 in 2012-2013, indicating an annual rate of about two abortions per 1,000

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women aged 15-49 in 2013 (Ministry of health and family welfare, 2013). Thus, the rates of abortion in India, are considerable, with almost one fourth of married women 15-39 experiencing an abortion at least once by the time they reach their late thirties.
It is notable that applications for registration by government facilities are routinely ignored by government officials as well as rural and tribal people and the state has failed to fully utilize funds disbursed by the central Government for the National Health Mission. Consequently, many women turn to untrained providers or dangerous methods of self-induced abortion as well as traditional herbal medication.

***Objective*:** The objective of the study is to find out the reasons of preference of traditional healing practices for induce abortion and documented their knowledge about traditional herbal medicine for abortion as well as anti-fertility among tribals of Bastar.

Study Area: There is sufficient intensive national campaign for safe motherhood and legalization of abortion that took place in Chhattisgarh since long time ago, but morbidity from abortion has remained a serious problem for women of Bastar in Chhattisgarh. By above reasons tribal village Bastar is selected for the study. Bastar is known for its diversified precious culture and it is also the habitat of forest dwellers people who depends on forest and their products for sustaining and surviving.

***Methodology*:** Methods of data collection are based on field work and secondary literature review where the secondary data is gathered from State Sample Registration Report and Ministry of health and family welfare, 2013. For primary data collection interviews were carried out with traditional healer who had participated in eight focus group discussions during monthly meetings, over a period of one month. These discussions covered topics such as abortion needs, and seeking behaviour of traditional healers for induced abortion and anti-fertility. By above way the semi-structured interview schedule were based on data obtained from the discussions, and covered reasons to preference of traditional healer for abortion and whether it is a selective abortion of female fetuses and those at risk of serious anomaly and knowledge of herbal plants. Through this process, the women revealed their opinions, grievances and aspirations. Local people acted as contact and support persons for the study as well as serving on an ethics committee for the study to examine our methodology and interactions with respondents. Informed consent was obtained from all the healers, and they had the option to leave the study at any point. The information collected, as well as the preliminary analysis of findings, have been (and are being) presented to them for their comments and corrections.

Result and Discussion: The present studies show that the rural and tribal women are well acquainted with the wild resources around them. They seem to depend on plants for curing various diseases including abortion, sterility, conception disorders, menstrual troubles, leucorrhoea etc prevailing among them. However, many of the uses of plants as abortificiant and antifertility herbals documented from the area have also been reported from other areas countries by various researchers.

Reasons to Preference of Traditional Healer

At the time of the study, the maximum retail price of abortificiant medicine like mifepristone, as indicated by the manufacturers, was 310 to 325 rupees whilst traditional healing by herbal medicine is less in cost among tribals' habitat. It is also studied that maximum women like to prefer traditional medicine in high frequency (54.71%) for abortion and post abortion care because of its low of cost and less side effect (79.24%) with it's easily availability (58.49%). A large number of tribal women (66.03%) reported that there is lot of formalities in government and private hospital for induced abortion, so they like to go traditional healer for abortion and for antifertility also. Poor government services (66.03%) in the tribals' area is another main problem where respondents reported that there is no benefit to go government institutional health service centre in village because of the absence of doctors and nurses.

Table 1: Prevalence Reasons to seeking Traditional Healing of Abortion among Tribals

Reasons	**Women Respondents (n=30)**					
	Low		**Medium**		**High**	
	No	***%***	***No***	***%***	***No***	***%***
Low cost of Herbal Medicine	10	18.88	14	26.41	29	54.71
More believe in Healer than Doctor	7	13.21	19	35.84	27	50.95
Ritual believe that prohibit to acquire modern medicine system	8	15.09	18	33.96	27	50.95
Poor institutional service in residential area	2	3.77	16	30.20	35	66.03
No side effect of herbal medicine	8	15.09	3	5.67	42	79.24
Easily availability of herbal healing	5	9.43	17	32.08	31	58.49
Too much formalities of induced abortion in government and private hospital	4	7.56	14	26.41	35	66.03

Traditional Method of Abortion by Ethno-medicine

Traditional healthcare practices of indigenous people pertaining to human health are termed as ethno-medicine. It is the mother of all other systems of medicine. Recently, the importance of these traditional medicines has been realized world wide as some of them proved to be very effective. Traditionally the tribal women prefer plant medicines rather than modern medicines for menstrual trouble, conception disorders, birth control practices, sterility, abortion etc. Abortifacients are drugs or agents that cause abortion i.e. expulsion of foetus permanently, particularly at any time before it is variable or capable of sustaining life (Tarafeder, C. R., 1983).

Some of the important plants used to induce abortion by the tribal and rural women of the area are *Aloe barbadensis* Mill, *Artemisia maritima* Linn, *Boerhavaia diffusa*, *Buddleja asiatica* Lour, Linn, *Chrysanthemum parthenium, Justacia adhatoda* Linn, *Ricinus communis* Linn, *Zingiber officinale* Rosc, *Daucus crota* Linn, *Nasturtium ofiicinalis* R.Br., *Chenopodium ambrosioides* Linn, *Cytisus scoparius* Linn, *Momordica charantia* Linn, *Plumbago zeylanica, Sapindus mukorossi* Gaertn, *Plantago ovata* Forsk, *Tanacetum vulgare* Linn and *Arctium lappa* Linn. Similarly species like *Amaranthus viridis* Linn. *Achyranthes aspera* Linn, *Ricinus communis* Linn, *Mentha arvensis* Linn, *Nepeta cataria* Linn, *Cuscuta reflexa* (R.), *Curcuma longa* Linn, *Foeniculum vulgare* (Mill.), *Butea monosperma* (Palash.), *Albizia lebbeck* (Linn.) Benth. *Ficus religosa* Linn, *Mentha longifolia* Linn, are used as contraceptives to stop conception. To bring sterility in many species like *Vitex negundo* Linn, *Coriandrum sativum* Linn, *Bombax ceiba* Linn. Among them 56.75 per cent are abortificent, 35.13 per cent are contraceptive and 8.1 per cent causes sterility in woman (Shah, et al. 1961). Saini (1996) reported that root paste of *B. diffusa* is taken with cow's milk to induce abortion in Central India. Similarly *B. ceiba, F. vulgare, R. communis are* used to make the women sterile, *A. aspera* to induce abortion and *V. negundo* to make the man sterile in the Chattarpur District of India (Amita & Anjali, 2005). Chawla et al. (1995) reported that that Neem oil is an effective oral antifertility agent, but its effect decreases as the pregnancy advances.

Z. officinale is also used as an abortifacient with Black pepper (Chopra, et al; 1969). Leaves of *P. zeylanica* are used for abortion (Asolkar, et al., 1992). In the present investigation, 40 medicinal plants have been reported (table 2) which are not only used for induce abortion, but it is also used to stop conception and to make the woman sterile.

Table 2: Ethno-medicinal Plants their Botanical name, Uses and Preparation Method as Abortification

S.N	**Botanical Name**	**Local Name**	**Family**	**Part of Plants**	**Process**
1	*A. barbadensis* Mill.	Ghee-kunver	Liliaceae	leaf	Pulp of leaves with black salt is taken (1g daily) for Abortion.
2	*A. lappa* Linn.	Janglikuth	Asteraceae	leaf	Tea made from leaves and roots possesses abortifacient properties.
3	*A. maritima* Linn.	Marshal	Asteraceae	leaf	Boiled and steeped leaves are applied on the abdomen to induce abortion.
4	*Abrus precatorius* Linn.	Gunja	Fabaceae	Seeds	A thin paste obtained by grinding seeds with water is applied on external genetalia.
5	*Achyranthes aspera* Linn.	Chirchita	Amaranthaceae	Roots	A paste prepared from roots is applied on abdomen.
6	*Aerva lanata*(Linn.) juss. Ex Schult	Bui	Amaranthaceae	Root	Fresh root (about 9cm long) is used as stick for inducing abortion. The medicine man suggested that this process of abortion is effective for terminating pregnancy up to 4 months only.
7	*Alternanthera philoxeroides* (Mart.) Griseb.	Bunber	Amaranthaceae	Whole plant	A piece of fresh plant, about 9 cm long is used as stick to abortion by taking ½ *Hing (Ferula assafoetida* Linn.*)*, at the top of this stick and keep the whole things over night inside to induced abortion.
8	*Amaranthus spinosus* Linn.	Kanta Chulai	Amaranthaceae	Leaves	30 ml. decoction of whole plant is given orally thrice a day for 5-8 days.
9	*Ananas comosus* (Linn.) Merr.	Annanas	Bromeliaceous	Leaves	Fresh young leaves (about 10g) are made into paste with 7 black pepper (*Piper nigrum* Linn.) seeds and the whole paste is given to the pregnant woman to induce abortion by the tribals.
10	*Ananas comosus* Linn.	Annanas	Bromeliaceous	Seed	The seed powder (about 3g) mixed with the powder of black pepper aeeds in equal amount is given to the pregnant woman and it is said

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S.N	Botanical Name	Local Name	Family	Part of Plants	Process
					that the drug is effective for under 4 months pregnancy.
11	*Annona squamosa* Linn.	Sarifa	Annonaceae	Seeds	Seeds powder is given empty stomach for five days.
12	*Aristolochia indica* Linn.	Sunanda	Aristolochiaceae	Roots	The fresh root about 9 cm. long is used induced abortion by the tribal women. They use the paste of the roots prepared by crushing fresh root about 10 gram with *Hing* in equal amount as abortificiant.
13	*Avicennia marina* (Forssk.) Vierch.	Bina	Avicenniaceae	Leaf	Mix the leaf extract with a glass of lukewarm goat milk and adequate amount of sugar and give this preparation at bed time to release the fetus.
14	*B. asiatica* Lour.	Rasont	Buddleiaceae	Root	Decoction of root bark is used (one tea cup daily) for premature abortion.
15	*B. diffusa* Linn.	Patthar-chatta	Nyctiaginaceae	Root	Roots are dried and made into powder and 2 g is given to pregnant women abortion
16	*Barleria cristata* Linn.	Vajradanti	Acanthaceae	Roots	Fresh root of about 3 gram is crushed with about 100 ml alcohols (from the flower of *Bassia latifolia* Roxb.) and give it once a day in early morning for 3-5 consecutive day to induce abortion up to the stage of 3 month pregnancy.
17	*Bombax ceiba* Linn.	Salmoli	Bombacaceae	Seeds	Seed powder about 30g is made in to paste with sugar molasses **(**about 50g) and *Hing* (about 10g). The whole paste thus obtained is divided into 3 equal parts. One each of these 3 parts is given in 12 hours gap to induce abortion.
18	*C. parthenium*	Gajor Ghans	Astraceae	leaf	Decoction of leaves if taken early in the morning by pregnant women causes
19	*C. scoparius* Linn	Besema	Leguminosae	Leaf	Leaves are boiled and given to induce abortion.
20	*Caesalpinia pulcherrima(*Linn.)	Guletura	Caesalpiniaceae	Leaf	Dried leaf infusion about 1 cupful is given in early morning in empty stomach to induce abortion. It is

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	Swartz				said that single dose is highly effective abortificiant to induce abortion of up to 2 months pregnancy. If the first dose is given after 7 days of the 1st dose.
21	*Cuscuta reflexa* Roxb.	Amarbel	Cuscutaceae	Plant	Fresh plant extract of about 50g is mixed with the extract of *Bishkutuli (Polygonum hydropiper* Linn.), seeds of the same amount, 5 black pepper seeds and about 5g table salt. The whole mixture is boiled after adding 200ml water. The whole mixture after boiling is filtered and the pregnant women take the filtrate in early morning, empty stomach for successive days to induce abortion.
22	*D. crota* Linn.	Gajar	Apiaceae	Seed	Seeds are made into powder form and it is given (2 g twice a day) for induce abortion
23	*Dendrophthoe falcate* (Linn.f.) Ettingshausen	Bandapatha	Loranthaceae	Stem	Fresh stem of about 20g, along with 11 black pepper seeds of about 10g and *cheeta* root (*plumbago indica* Linn.) are crused to paste. The whole paste thus obtained is given early morning, empty stomach by the tribals of Bastar to induced abortion.
24	*Gloriosa superba L.*	Kalihari	Liliaceae	Tuber	Tuber extract 1teaspoonful taken twice a day for 5 days is administered upto 3 months pregnancy for abortion.Another method is that fresh roots of about 20g are made in to paste along with 7 black pepper seeds. The whole paste thus obtained is given with a glass of lukewarm goat milk at the bed time to induced abortion.

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S.N	Botanical Name	Local Name	Family	Part of Plants	Process
25	*Hibiscus rosa-sinensis* Linn.	Devifhul	Malvaceae	Root	Inner portion of the root bark (about 100g) is made into paste along with the seeds of black pepper. The whole paste thus obtained is mixed with a glass of water and is given as the abortificiant to *Sabar* women.
26	*J. adhatoda* Linn.	Bansa	Acanthaceae	Root	Dried root (1g twice a day) to women to induce abortion are made into powder given.
27	*M. charantia* Linn.	Khansi	Cucurbitaceae	Root	Dried roots are made into powder form and given (2 g daily for one week) as abortifacients.
28	Meyna spinosa Roxb. Ex Link	Muyna	Rubiaceae	Pulp	Pulp of the ripe fruits and seeds are made into paste with 2-3 *Rasun* (bulb of *Allium sativam* Linn.) and *Hing* (about 2.5g). The whole paste thus obtained is made into a pill to keep it inside for overnight to induce abortion. It is said that this drug is effective to induce up to 2 months pregnancy.
29	*N. ofiicinalis* R.Br.	Genda	Cruciferae	Whole plant	Fresh plant is collected and cooked as vegetable and eaten. It may causes temporary sterility and cause abortion also.
30	*Nerium indicum* Mill	Kaner	Apocynaceae	Root	The roots of the plant are procured for abortion by internal administration.
31	*P. ovata* Forsk.	Isabgol	Plantaginaceae	Seeds	Seed and husk mucilage (5 g daily early in the morning) is taken orally for the termination of pregnancy.
32	*Papaver somniferum* Linn.	Khaskhas	Papaveraceae	Flowe r	The milk from the fresh Papaveraceae capsule has sedative effect and causes abortion.
33	*Plumbago rosea* Linn.	Lalchitrak	Plumbaginaceae	Root	A candle of about 9cm long is prepared from the root paste of this plant, which is kept inside overnight to induce abortion for the pregnancy up to 3 months.
34	*Plumbago zeylanica* Linn.	Chitrak	Plumbaginaceae	Root	Fresh root of about 9 cm long is used to induce abortion

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S.N	Botanical Name	Local Name	Family	Part of Plants	Process
35	*Semecarpus anacardium* Linn.F.	Bhilawa	Anacardiaceae	Root	Fresh root paste of about 20g is made into paste. Two small pills are prepared from this paste and are kept inside overnight to induce abortion.
36	Stephania japonica (Thumb.)Miers .	Akanadi	Menispermacaceae	Root	Fresh root paste of about 30g is given to induce abortion for the pregnancy up to 2 months by *Munda* tribe.
37	*T. vulgare* Linn	Tansy	Asteraceae	Flower	Tea made from flowering tops possesses abortifacient properties
38	*Taxus wallichiana*	Gallu	Taxaceae	Leaf	Fresh leaves if used in the doses of 5-10 g daily induce abortion.
39	Z. officinale *Rosc.*	Adrak	Zingiberaceae	Roots	The powder of ginger in the doses of 2 g daily is given to women as abortifacients. powder.
40	Ziziphus nummularia	Jhadber	Rhamnaceae	Roots	Root bark powder mixed with candy sugar is taken with milk (3-5 g twice a day) induces abortion.

Recommendation

There is an urgent need for the detailed scientific studies and also necessary steps should be taken to conserve the threatened species. Plant drugs used in the tribal and rural areas deserves detailed studies. The efficacy and safety of most of the traditional remedies of the tribal and rural people are required to be subjected to scientific verification particularly in chemical investigations.

The investigation of traditional therapies should be intensified with the objective of increased efficiency by taking advantage of technical progress. Risk could be reduced through the analysis of unknown or insufficiently known secondary and long-term effects. From hitherto prevailing empiricism the path followed will have to lead to standardized experiments in clinical pharmacology. Tests should be undertaken to increase the content of desired components in plants though breeding, selection and intensive cultivation or through the improvement of production, processing and marketing. At all events, it is important to ensure the survival of valuable species in their natural habitat. The highly interesting findings for birth control by using herbal drugs require further research, while the efficacy of the various indigenous practices will need to be subjected to pharmacological validation.

Conclusion

In tribal as well as in rural areas, illiterate and unaware people not availing government health facilities by its poor service delivery system. Proper health care services are still not reaching to the tribals' area. In meantime the rural and tribal people use the plants for the diseases they suffer; it is very difficult to judge the effectiveness of traditional medicines. Further research on these medicinal plants is necessary to judge and improve the quality and effectiveness of these ethno-medicines. At the same time the complications caused by some of the medicines prescribed by the traditional healers should also be taken into consideration. In the present study, 40 medicinal plants used for family planning are recorded and documented. In spite of rapid progress and spread of modern medicine and surgery, faith in and popularity of traditional methods has not decreased. Recently the importance of these traditional medicines has been realized worldwide as some of them proved to be very effective and some other prescriptions of these traditional healers may be of benefit to human kind when thorough scientific analysis is conducted into their properties.

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