INNSPUB

International Journal of Biosciences | IJB |
ISSN: 2220-6655 (Print) 2222-5234 (Online)
http://www.innspub.net
Vol. 18, No. 2, p. 252-260, 2021

RESEARCH PAPER OPEN ACCESS

Dietary practices followed during pregnancy by the tribes of Idukki District, Kerala: A qualitative study

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Key words: Muthuvans, Nutrition, Tubers, Wild foods, Wild leafy vegetables

http://dx.doi.org/10.12692/ijb/18.2.252-260 Article published on February 26, 2021

Abstract

Pregnancy is a very crucial period and the food consumed by the expecting mother is believed to alter the life of the unborn child. Nutritional requirements increase during pregnancy and lactation to support both foetal/infant growth and maternal metabolism/tissue development. The study to document the beliefs and practices followed during pre-natal and post-natal period was conducted from January – November, 2019 among the Muthuvan women of Adimaly Panchayat, Idukki district, Kerala. Data was collected using informal discussions and semi-structured face-to-face interviews. Some of the practices followed by the women included consuming millets like ragi (Eleusine coracana (L.) Gaertn.), chama (Panicum sumatrense Roth ex Roem. & Schult.), green leafy vegetables, meat and wild seasonal fruits like jackfruit, mango and jamun. They believed in consumption of nutritious and natural foods on a daily basis which kept them healthy even during the pregnancy period.

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Introduction

Pregnancy is a very crucial stage in the life of a woman and the life she brings into the world. Women are believed to be physically weaker, easier to be influenced and hence need to be protected. Food consumed by the mother is believed to influence the life of the unborn child which has led to taboos, especially revolving around pregnant and nursing women (Ferro-Luzzi, 1975).

Nutritional requirements increase during pregnancy and lactation to support both fetal/infant growth and maternal metabolism/tissue development. Pregnant women are recommended consumption of highly nutritive diet to avoid nutritional inadequacy. The US Government in 1998 advocated addition of folic acid to bread, cereals, flours and other grain products to compensate the recommended daily intake of 400 micrograms of folic acid in the diet (Picciano, 2001).

Inadequacy in maternal diet has repercussions on the health of the child like anaemia (Vitamin A and Iron Deficiency) (Suharno *et al.*, 1993; Allen, 2000), cretinism and associated defects such as deaf mutism, spasticity, stunted growth, mental retardation (Iodine deficiency) (Dunn and Delange, 2001), low birth weight (Picciano, 2003), neural tube defects (folate deficiency) (George *et al.*, 2002) and reduced bone-mineral accumulation (Vitamin D deficiency) (Javaid *et al.*, 2006).

Nutrient density of maternal diet during lactation assumes greater importance as the infant solely depends on breast milk to supply its daily need of nutrients (Picciano, 2001). When a distinct nutritional deficiency is evident in the infant, the nursing mother would be put on supplements to balance the same (Picciano, 2003).

This study works towards creating a list of nutrient rich food options which could be consumed during this stage of life. This database would be drawn from interviews conducted among the Muthuvan indigenous populations of Idukki district, Kerala. The idea behind choosing the indigenous population is their proximity to nature and locally available food resources.

Their dietary practices when cross-checked with scientific evidences might pave way for new revelations about food products. This could thus reduce dependence on supplements to meet the nutritional requirements making nutrient rich diet available to all pregnant and lactating women across different economic classes of the society.

The aim of the study to document the dietary practices, traditions and taboos followed during pregnancy and lactation by the women of the Muthuvan community of Idukki district. Articles analysing the food practices especially during pregnancy and lactation are few in number. This research would provide an insight on the practices followed by the indigenous communities with focus on wild foods.

Materials and Methods

Study Area

Kerala houses 35 indigenous communities with five of them categorized as Particularly Vulnerable Tribal Groups (PVTGs). Idukki, one of the 14 districts of Kerala state, is the second largest district in area with lowest population density. The district lies approximately within 9.9189° N latitude and 77.1025° E longitutde. Malampandaram, Malappulayan, Malayarayar, Urali, Muthuvan and Mannan are the tribal communities inhabiting this district.

Muthuvans

Muthuvans, a forest dwelling tribe, are one of the most prominent indigenous communities in Kerala with majority of them residing along the hills of Devikulam Taluk, Idukki district. The Muthuvans were cultivators from the plains of Madurai who took refuge in the Anamalai hills, running across Kerala and Tamil Nadu, during the fall of the Pandyan Empire (Ajesh *et al.*, 2010).

They have been leading an intricate life collecting and using a number of wild edible species of tubers, vegetables and fruits available in the forest for their daily diet. Traditionally, Muthuvans practiced slash and burn agriculture, growing ragi (*Eleusine coracana* (L.) Gaertn.) and rice (*Oryza sativa* L.).

They have now settled in land allotted by the forest department working as daily wage labourers, cultivating cash crops like cardamom (*Elettaria cardamomum* (L.) Maton), black pepper (*Piper nigrum* L.) and coffee (Coffea sp.) (Ajesh *et al*., 2010).

Methods

Explorative field trips, informal discussions, free-listing and semi-structured face-to-face interviews (Newing, 2010) were conducted at 11 Muthuvan settlements of Adimaly Panchayat, Idukki district from January-November, 2019 to document the dietary practices being followed during pre-natal and post-natal period. Interviews were conducted after obtaining verbal consent from the respondents. Necessary permissions were obtained from the Kerala Forest and Wildlife Department and Scheduled Tribes Development Department, Kerala for conducting surveys at the tribal settlements.

The surveys were conducted with the help of tribal promoters (local representatives) who helped in breaking the ice and communicating with the respondents. Multiple visits to the tribal settlements were made to develop rapport with the inhabitants. Informal talks and focus group discussions were conducted followed by in-depth interviews of individuals having more knowledge about the topic (Table 1).

Muthuvans speak a mixed dialect of Malayalam and Tamil language and hence both the languages were used to converse with them to ensure the questions were properly understood. Open ended questions broadly focusing on food beliefs and practices followed during pre-natal and post-natal stages were asked and each interview lasted 20-30 minutes. The responses were recorded in written form on questionnaire sheets.

Data analysis

The interview notes was analysed and the emergent food items was classified as preferred and avoided foods. The maternal dietary beliefs and practices related to the listed food items were also noted.

Results and Discussions

Respondent profile

A total of 59 female respondents from nine different Muthuvan settlements were interviewed. The respondent age ranged from 21 years to 85 years of age with majority being uneducated (n=33) while one had completed graduation and seven had completed 10th standard. They mainly involved in daily wage labour as part of the National Rural employment Guarantee Scheme (NREGS) followed by agriculture. Few of the respondents (n=5) were employed at the anganwadis (rural child and mother care centres) (Table 2).

Dietary practices

Food preferred during pre-natal period: Green leafy vegetables (54%) were the main food given to the expecting mother along with ragi porridge (32%), fruits (14%) and tubers (39%) from the wild (Table 3). Fresh fish and crabs (3%) and honey (2%) was also served

Any food craving of the mother was fulfilled by the family members. These food items were stated as being "*good for health*", "*desired food*" and were believed to "*facilitate easy delivery*". Of late, nutrient supplement tablets are provided by the health department to the pregnant women and regular check-ups are also conducted free of cost.

A common statement (81%) made was "*we used to eat healthy food from the forest on a daily basis. So, particular nourishment during pregnancy was not needed*". Studies have also showed higher nutrient values for the wild leafy variety of Amaranthus sp when compared to the cultivated ones (Pradeepkumar *et al*., 2015).

Green vegetables are the main source of carotene, riboflavin, folic acid, ascorbic acid and calcium making them nutrient rich economically viable foods (Sivakumar and Murugesan, 2005). The wild edible fruits are rich in carbohydrates, proteins, vitamin A, vitamin C, fibre, protein, phosphorous, calcium and carotene (Ajesh *et al*., 2012; Rathore, 2009).

Table 1. Interview guide followed during focus group discussions and in-depth surveys

Pre-natal period	Post-natal period
Foods consumed/preferred	Foods consumed/preferred
Specific foods consumed following any beliefs	Specific foods consumed as galactagogues
Foods avoided, reason for avoiding	Foods avoided, reason for avoiding
Foods given during illness arising in this period	Mode of delivery
Lifestyle	Lifestyle

The tubers of *Dioscorea alata* and *Dioscorea bulbifera* are good for the stomach and are a remedy for constipation and piles (Singh and Kumar, 2015). Hence their regular consumption is highly recommended.

Fresh fish and crabs, especially pregnant crabs, was fed to the women owing to the belief that they will also be able to deliver many children like the crabs. They were also encouraged to eat rose petals to deliver beautiful babies.

Table 2. Respondent profile (n=59)

SN	Settlement name	No. of respondents	Percentage of Respondents
1	20 acre	6	10
2	Choorakattan	5	8
3	Edamalakudy	7	12
4	Kattamudi	8	14
5	Kunjipetty	8	14
6	Padikappu	6	10
7	Plamakudy	7	12
8	Thalanirappan	4	7
9	Thattekannan	8	14
Age of Respondents			
SN	Respondent age	No. of respondents	% of respondents
1	20 – 29	11	19
2	30 – 39	18	31
3	40 – 49	10	17
4	50 – 59	5	8
5	60 – 69	7	12
6	70 – 79	4	7
7	80 – 89	4	7
Educational status			
SN	Education	No. of respondents	% of respondents
1	Primary school (1-5)	9	15
2	Middle school (6-8)	9	15
3	High school (9-10)	7	12
4	Graduation	1	2
5	Illiterate	33	56
Occupation			
SN	Occupation	No. of respondents	% of respondents
1	Agriculture	13	22
2	Daily wages, NREGS	26	44
3	Anganwadi teacher/helper	5	8
4	No occupation	15	25

Food avoided during pre-natal period: The women readily listed items (n=15) that were avoided during pregnancy when compared to the one's preferred (Table 4). Papaya (*Carica papaya* L.) (Both raw and ripe) was highly avoided (52%) followed by eggs (27%), mushrooms (22%),

brinjal (*Solanum melongena* L.) (20%), prawns (15%), *pineapple* (*Ananas comosus* (L) Merr.) (14%), chena (*Amorphophallus paeoniifolius* (Dennst.) Nicolson) (12%) and wild meat (10%).

Some of the women (22%) also mentioned as to not have followed any rules during their pregnancy and not facing any problems as a consequence.

Table 3. Food items preferred during pre-natal period

SN	Food items	Scientific name	No. of respondents	Percentage of respondents	Reason for preference
1	Green leafy vegetables				
	Chembanthalu	*Colocasia esculenta* (L.) Schott	4	7	Good for health
	Kutticheera	*Sauropus androgynus* (L.) Merr.	2	3	Good for health
	Chomanacheera	*Amaranthus* sp	9	15	Good for health
	Vellacheera	*Amaranthus* sp	4	7	Good for health
	Pachacheera	*Amaranthus* sp	9	15	Good for health
	Kadugukeerai	*Brassica juncea* (L.) Czern.	1	2	Desired food
	Muringa	*Moringa oleifera* Lam.	2	3	Good for health
	Thakalikeerai	*Solanum nigrum* L.	1	2	Good for health
2	Fruits				
	Eendhanka	*Cycas circinalis* L.	2	3	Good for health
	Chinnathakali	*Solanum nigrum* L.	1	2	Good for health
	Makkanga	*Entada rheedii* Spreng.	1	2	Good for health
	Kalluvazha	*Ensete superbum* Roxb.	1	2	Good for health
	Vazhapalam	*Musa* sp.	1	2	Good for health
	Kaatuchakka	*Artocarpus heterophyllus* Lam.	1	2	Good for health
	Manga	*Mangifera indica* L.	1	2	Good for health
3	Tubers				
	Kachil	*Dioscorea alata* L.	2	3	Facilitates easy delivery
	Thettakezhangu	*Dioscorea oppositifolia* L.	6	10	Good for health
	Vallikezhangu	*Ipomoea batatas* (L.) Lam.	9	15	Good for health
	Nooramkezhangu	*Diosorea pentaphylla* L.	3	5	Good for health
	Koova	*Maranta arundinacea* L.	3	5	Good for health, cools the body
	Others				
4	Milk, egg		2	3	Good for health
5	Millets like paddy and ragi		19	32	Good for health
6	Honey		1	2	Good for health
7	Non-Vegetarian food like meat and crab		2	3	Desired food
8	Supplements received through anganwadi		4	7	Good for health
9	No specific foods/regular daily foods/ whatever the lady feels like eating/ tubers and other products consumed regularly		48	81	Remain healthy throughout life time

These food items were avoided on the recommendation of the elders. The reasons mentioned were "*causes abortion*", "*difficulty during delivery*", "*problems after delivery like sagging of uterus*" and "*complete removal of afterbirth will be hindered*".

A widely prevalent notion pertaining to food is the concept of 'hot' and 'cold' foods. This classification bears no relation to the characteristics of the food. It rather relies on the effects they have on individuals and hence varies from region to region. During early stages of pregnancy the female is considered to be in the 'hot state' and hence advised to consume 'cold' foods to avoid abortion and 'hot' diseases like scabies, ulcers, chicken pox etc. During the third trimester, the body requires more amount of heat to expel the infant and hence more 'hot' foods are consumed (Nag, 1994).

Table 4. Food items avoided during pre-natal period

SN	Food item	Scientific name	No. of respondents	Percentage of respondent	Reason for preference
	Fruits and vegetables				
2	Papaya (raw and ripe)	*Carica papaya* L.	31	52	Causes abortion (23), difficulty during delivery (8)
3	Pineapple	*Ananas comosus* (L.) Merr.	8	14	Complete removal of afterbirth will be hindered (3), recommended by elders (4)
4	Brinjal	*Solanum melongena* L.	12	20	Recommended by elders
5	Mathanga	*Cucurbita maxima* Duchesne	5	8	Problems after delivery like sagging of uterus (1), difficulty during delivery (1), recommended by elders (3)
6	Mushroom		13	22	Recommended by elders
	Tubers				
7	Chena	*Amorphophallus paeoniifolius* (Dennst.) Nicolson	7	12	Recommended by elders
8	Chembu	*Colocasia esculanta* (L.) Schott	3	5	Problems after delivery like sagging of uterus (1), difficulty during delivery (2)
9	kappa	*Manihot esculenta* Crantz	1	2	Increases abdominal gas
	Others				
10	Nelakadala	*Arachis hypogaea* L.	1	2	Problems after delivery like sagging of uterus
11	Coconut	*Cocos nucifera* L.	5	8	Difficulty during delivery
12	Non-vegetarian food		4	7	Recommended by elders
13	Wild meat		6	10	Recommended by elders
14	Egg		16	27	Recommended by elders
15	Prawns		9	15	Recommended by elders
17	no specific foods/regular daily foods/ whatever the lady feels like eating/ tubers and other products consumed regularly		13	22	Remain healthy throughout life time

Consumption of tubers like *kappa* (*Manihot esculenta* Crantz) is avoided in the third trimester as it was believed to cause flatulence.

Muthuvan women of South India avoided eggs as they are supposed to have antagonistic effect on fertility and libido. Animal derived foods (egg, fish, and meat) are avoided during pregnancy as they are believed to make the infant larger (Ferro-Luzzi, 1975).

Raw papaya (*Carica papaya* L.) is highly avoided during pregnancy for fear of abortion. Ferro-Luzzi from his studies (Ferro-Luzzi, 1973)shows this belief to be widespread in Tamil Nadu which might stem from the Tamil name of Papaya "Papali", meaning 'destroy child' (Papa: little child, Ali: destroy). Raw Papaya contains high concentration of latex (papain and chymopapain being the main constituents) which bring about uterine contractions leading to abortion. The quantity of latex reduces as the fruit ripens (Adebiyi *et al.*, 2002).

Table 5. Food items consumed during post-natal period

SN	Food items	No. of respondents	Percentage of respondents	Reason for preference
1	Seasonally available fruits, vegetables and milk purchased from local shops	3	5	Good for health
2	Supplements received through anganwadi	7	12	Good for health
3	Wild greens like Veelicheera (*Sauropus androgynous*), Pachacheera (*Amaranthus* sp), Kadugukeerai (*Brassica juncea*)	8	14	Good for health, galactagogue
4	Tubers belonging to *Dioscorea* sp.	3	5	Good for health
5	*Pulirasam*	5	8	Clears the uterus
6	Sweet made of Green gram, coconut and jaggery	4	7	galactagogue
7	*Kanjivellam* with salt	32	54	galactagogue
8	Honey	1	2	Good for health
9	Ragi porridge	5	8	Good for health
10	No specific foods/regular daily foods/ whatever the lady feels like eating/ tubers and other products consumed regularly	47	80	Remain healthy throughout life time

Foods like *dosa, pappad* which are circular in shape is also avoided as it is believed to cause problems like sagging of uterus after delivery. The elders recommend drinking water or any liquid from round vessels rather than from cylindrical vessels. Coconut is another food avoided following the belief that "*as the coconut is covered by many layers and difficult to reach the kernel, similarly the lady too will have a difficult delivery*".

The women used to undertake all household works during their pregnancy period. Some of the respondents recalled having worked till the day of their delivery. The occurrence of illness was also close to nil due to the lifestyle and food habits of the older generation. '*Kaatumerunu*' or wild medicine was taken in case of any problems. The younger women now-a-days face problems like joint pain, swelling and depend on allopathic medicines for its cure.

Post-natal period

After delivery the mother is given a decoction made of Kodampuli (*Garcinia gummi-gutta*) and spices (8%) to "*clear the uterus of all debris*" for seven days. Ragi or rice porridge was also given. Foods believed to possess galactagogue properties like wild greens (14%) and sweet made of green gram and jaggery (7%) were given (Table 5).

Consumption of *Kanjivellam* (54%) or rice water with salt after offering special prayers as a galactagogue is a notable feature of the Muthuvans. Sometimes the water drained after mixing hot rice porridge and grated coconut and left for a few hours is also consumed. The Muthuvan women vouched for the efficiency of this remedy stating their personal experiences. Nutrient supplements (12%) are taken by the current generation mothers.

Earlier the new mother would return to her chores from the very next day of delivery with the little one tied to her back. The delivery would take place in the forest assisted by other elderly women. "*The woman would be made to sit on a rock over a cloth bundle. Few ladies support her from behind. The new born is washed in cold water. Sharp bamboo stick is used to cut placenta*". Now-a-days the delivery takes place in the hospital and the new mother is advised rest of three months. The new born is breast fed for two to six years or as long as the child demands and is supplemented with regular foods consumed by the elders of the house.

Conclusion

Immense difference is observed in the current lifestyle patterns of the Muthuvans. A community that was totally depended on wild foods has now turned to the cities for food and medicine. This change is also observed in the lifestyle of the pregnant Muthuvan women.

The Muthuvan women were found to follow no particular diet during pre-natal and post-natal period. They rather believed in regular consumption of nutritious and natural foods which kept them healthy throughout the pregnancy period.

This practise has changed in the recent years with change in their lifestyle pattern, mainly in relation to diet. Food products from the local markets are widely preferred. Time constraint and lack of interest in collecting wild foods is one of the reasons cited by the respondents for the decrease in consumption of the wild edible species. They also receive essential food supplies as part of the food support scheme of the tribal department.

Rice has now become a staple diet of the Muthuvans replacing the tubers and wild greens that were consumed earlier.

Recommendations

The easy answer to nutritional problems is to prescribe supplements which comes with a cost – a wide range of health problems to the mother and the child. A safer and more economical approach would lie in creating awareness among the community about the effectiveness of their traditional dietary practices, paving way for a nutritionally and ecologically sound diet.

Acknowledgements

We thank the officials of the Kerala Forest and Wildlife Department and the Scheduled Tribes Development Department, Kerala for permission and their cooperation during field surveys. We would also like to thank the respondents from the various Muthuvan communities for sharing their traditional knowledge and support during the surveys. The first author would like to thank UGC, New Delhi, for financial support as UGC-NET JRF fellowship.

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