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CHAPTER 2 (STUDY I)

HABITS, BELIEFS AND CONSUMPTION PRACTICES OF METHIPAK

INTRODUCTION

The first step in the product development was collection of data pertaining to the dietary practices and food belief system especially related to methipak. According to PFNDAI (1977) which carried out a dietary habit survey of pregnant and lactating women in Anand, Gujarat, methipak was one of the most popular foods consumed during pregnancy and lactation. A few respondents commented that methipak was better avoided during pregnancy.

The present study was conducted essentially to verify the PFNDAI findings. Besides, it was considered necessary because it would also provide certain guidelines for the subsequent studies on product development.

OBJECTIVES

The specific objectives of the study were :

To determine :

1. If the concept of consuming special mother foods, especially methipak was present in pregnancy and lactation.
2. The beneficial effects of consuming methipak during pregnancy/lactation.
3. The reasons for not consuming methipak (especially during pregnancy).
4. The sharing characteristics of methipak (whether methipak was eaten by all the family members).
5. The period (trimester in pregnancy and month of lactation), time (whether eaten at a particular time of the day) and duration of consumption (in weeks, months) of methipak.
6. Approximate amounts consumed in a day.
7. The ingredients used and the method of preparation.

MATERIAL AND METHODS

Sample

The sample for the survey consisted of 585 pregnant and lactating women from low, middle and upper classes of urban Baroda. Table 8 shows the break-up of the sample. The monthly income was Rs. 600/- or less for low income group between Rs. 601 - 1500/- for middle income group and above Rs. 1501 for high income group.

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Table 8 : The sample for the survey from low, middle and high income groups and the place of interview

Income group	*Pregnant/lactating*	*n*	*Place of Interview*
Low	*Pregnant*	*200*	*Antenatal clinic of SSG*
< 600 Rs./m			*Hospital, Baroda*
Middle			
601 - 1500	*Pregnant*	*132*	*Antenatal and postnatal*
Rs./m	*Lactating*	*68*	*clinic of Shantadevi Nursing Home, Baroda.*
High			
> 1501	*Pregnant*	*69*	
Rs./m	*Lactating*	*116*	*Through house visits.*
	Non pregnant		
	Non lactating	*77*	

The women in the low and middle income groups were contacted at the antenatal and postnatal clinics of two local hospitals. All the women who came for check-up on the interview days were included in the sample. Since no hospital or clinic in Baroda catered exclusively to the upper class, the women in this group were contacted at their homes. The addresses of these women were obtained from the practising gynecologists of the city. A group of 77 non-pregnant, non-lactating elderly women from the high income bracket was also included since preliminary visits in the community had indicated that methipak was generally prepared in the homes by these women. Furthermore, they were important trend-setters and influential change agents as the advice related to diet in pregnancy and lactation was sought from these women. These women were contacted with the assistance of the students of the Faculty of Home Science who themselves came from affluent families.

Tool for data collection

The required information was collected with the help of a pretested and structured questionnaire, which was also designed to elicit information on some background data such as family income, ethnic group, education of the women, her age and parity (For details please see Appendix I).

Statistical analysis

The frequency distribution, percentages, means and standard deviations were calculated. The Chi-square test was used to find out if the differences between responses from various income groups were significant.

RESULTS

I. Background information of the respondents

In Tables 9-12 data on the background of the respondents from different income groups is presented. The mean age (Table 9) of the women was 23, 25, and 25 years in low, middle and upper income groups respectively. The nonpregnant and nonlactating women from the high income group were mostly over 40 years of age the mean age being 44 years.

Table 10 reflects the education profile of the women respondents. Most (47%) of the low income group women were illiterate. The percentage of illiteracy was much less in the middle and high income groups. Most of the respondents from these two groups had secondary school or college education (graduation).

Table 11 gives information on the parity of the subjects. The mean parity

Table 9 : Age of the pregnant, lactating and nonpregnant nonlactating respondents in low, middle and high income groups

Age in Years	Low		Middle		High (PYL)		High (NPL)	
	n	%	n	%	n	%	n	%
< 20	73	37	24	12	-	-	-	-
21 - 25	95	485	101	51	11	14	-	-
> 25	32	16	75	38	66	86	77	100
Mean + S.E.	22.6 ± 0.26		24.9 ± 0.25		25.3 ± 0.32		43.8 ± 0.79	

P/L - Pregnant, lactating
NPL - Nonpregnant, nonlactating

Table 10 : Education of the pregnant, lactating, and nonpregnant, nonlactating respondents in low, middle and high income groups

Education	Low		Middle		High (P/L)		High (NPL)	
	No	%	No	%	No	%	No	%
NIL	95	48	23	12	-	-	-	-
Primary	38	19	13	7	-	-	-	-
Middle	37	19	33	17	12	7	12	16
Secondary	26	13	87	44	14	22	33	43
Graduate	4	2	37	19	111	60	24	31
Post-graduate	-	-	7	4	21	12	8	11

P/L - Pregnant lactating
NPL - Nonpregnant nonlactating

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Table 11 : Parity of the pregnant, lactating and nonpregnant nonlactating subjects from low, middle and high income groups

Parity	Low		Middle		High (P/L)		High (NPL)	
	No	%	No	%	No	%	No	%
1	69	35	72	36	35	19	7	9
2	62	31	59	30	83	45	27	35
3	42	21	44	22	53	29	19	25
4	17	9	17	9	8	4	14	18
> 4	10	5	8	4	6	3	10	13
Mean ± SE	*2.18 ± 0.04		2.14 ± 0.08		2.28 ± .06		2.9 ± 0.13	

P/L - Pregnant lactating

NPL - Nonpregnant nonlactating

* No of children.

Table 12 : Ethnic group to which the pregnant, lactating & nonpregnant, nonlactating respondents from different income groups belonged

Ethnic group	Low		Middle		High (P/L)		High (NPL)	
	n	%	n	%	n	%	n	%
Gujarati	133	67	101	51	82	44	24	31
Maharash-trian	35	17	79	39	9	5	3	4
Any other*	32	16	20	10	94	51	50	65

P/L - Pregnant - lactating

NPL - Nonpregnant - nonlactating

* Punjabi, Rajasthani, North Indians.

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was almost the same in the three income groups and was a little higher than 2

Table 12 shows the ethnic groups to which the respondents belonged. Majority of the subjects in the low and middle income groups were either Gujaratis or Maharashtrians. In the high income group, several respondents belonged to other ethnic groups besides Gujarati such as Rajasthani and Punjabi.

II Consumption of special foods during pregnancy and lactation

The pregnant and lactating women were asked if they changed their diet during pregnancy and lactation or consumed special foods during these periods. The data presented in Table 13, reveal that majority of women in the low and middle income groups did not consume any special foods during pregnancy. Their diets during pregnancy were similar to that before pregnancy. In the higher income group more than half of the women interviewed stated that they consumed a special diet during pregnancy. The details of the diets consumed were not obtained. However, they generally included more milk, fruits and green vegetables in their diets. In contrast to this, the use of a special diet or special foods duriong lactation was almost universal in all the income groups. Detailed information regarding the consumption of methipak, the most popular special food, was collected.

III. Familiarity with methipak

Table 14 depicts that methipak was a familiar and well known sweetmeat among most of the respondents interviewed. In fact 74-77% of the respondents in the LIG and MIG stated that they prepared the product at home. However, in most of the LIG families the preparation of methipak depended upon their ability to spend on it since it was an expensive food. Most of the LIG and MIG respondents were Gujratis or Maharashtrians; by way of contrast those from the HIG came from different ethnic backgrounds. Possibly this was the reason for the HIG having a significantly lower claimed consumption pattern as compared to counterpart respondents in the LIG and MIG.

IV Consumption of mehtipak during pregnancy, lactation or winter

The respondents were asked to specify when they generally consumed methipak. Several women mentioned that besides pregnancy and lactation, methipak was also prepared in the home in the months of winter. The data presented in Table 15 reveal that the use of methipak was more common in lactation that in pregnancy. In the total sample, 55% respondents

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Table 13 : ***Consumption of special foods during pregnancy and lactation in different income groups***

If special foods consumed during pregnancy	*Low*		*Middle*		*High P/L*		*High NPL*	
	n	*%*	*n*	*%*	*n*	*%*	*n*	*%*
Yes	*15*	*8*	*31*	*16*	*91*	*49*	*47*	*61*
No	*185*	*92*	*169*	*84*	*94*	*51*	*30*	*39*
If special foods consumed during lactation.								
Yes	**-*	*-*	*182*	*91*	*130*	*70*	*54*	*77*
No	*-*	*-*	*18*	*9*	*55*	*30*	*16*	*23*

P/L - Pregnant - lactating

NPL - Non pregnant - nonlactating.

**For low income group, only pregnant women were interviewed.*

Table 14 : *Practice of consuming methipak among families of women interviewed*

Income Group	Total sample n	Consume Methipak		Do not consume methipak	
		n	%	n	%
Low	200	148	74*	52	26
Middle	200	155	77	45	23
High (P/L)	185	109	59*	76	41
High (NPL)	77	50	65	27	35
Total	662	462	70	200	30
Chisquare (df 1)	9.88*				

P/L - Pregnant - Lactating; NPL - Non pregnant - non lactating

*Significantly different $P < .05$

Table 15 : ***Consumption of Methipak during pregnancy, lactation and winter in different income groups***

Income Group	Consumption during					
	Pregnancy		Lacation		Winter	
	n	%	n	%	n	%
LIG (148*)	18	12	141	95	82	55
MIG (155)	33	21	137	88	97	62
HIG(P/L)(109)	48	44	83	76	76	70
HIG(NPL) (50)	25	50	33	66	38	76
Total (462)	124	27	394	85	293	63
Chisquare						
LIG vs MIG	3.87*		3.87*			
MIG vs HIG	14.51**		6.05*			

* $P < .05$; ** $P < .01$

*Values in the parentheses indicate the number of subjects who consumed methipak.

said that methipak was eaten during lactation; whereas only 27% reported that it was consumed during pregnancy. This difference was even greater in the LIG in which only 12% respondents reported of consuming methipak during pregnancy as against 95% during lactation. Mehtipak was also considered by 63% of the subjects as a winter food because of its 'hot' nature (i.e. producing heat in the body).

V ***Beneficial effects of methipak***

Table 16 lists some of the beneficial effects ascribed to methipak if consumed during pregnancy and/or lactation. The most common medicinal value associated with it both during pregnancy and lactation was that it could lessen body aches especially those of the waist and the back. It is to be noted that generally any gynaecological problem was described in terms of back and waist pains. It was also considered by many (41%) subjects that methipak provided stamina. Some subjects (21%) could not point out the specific benefit and thought that it was consumed for general well being during pregnancy and lactation. A few women stated that it was good for blood.

The specific advantages if consumed during pregnancy were stated to be that it helped in the parturition (i.e. the delivery was easier) and it could reduce gastric problems such as indigestion or stomachache.

The specific properties ascribed to methipak if consumed in lactation were its galactogogic nature and subsequent better health of the child and also regulation of menstruation. Certain other beneficial effects which were stated by few respondents were as follows :

1. Increases appetite
2. Provides calcium
3. Provides iron
4. Cools down irritation
5. Keeps the body in a toned form
6. Contracts the uterus
7. Good for bones
8. Good for any obstetric problem
9. Like the taste

VI. ***Reasons for not consuming methipak during pregnancy***

Since the practice of consumption of methipak was found to be much less during pregnancy (27%); the women were further probed to find out

Table 16 : *Claimed beneficial effects of consuming methipak during pregnancy / lactation in different income groups*

Beneficial effect.	Low		Middle		High (P/L)		High(NPL)		Total	
	n	%	n	%	n	%	n	%	n	%
During Pregnancy & lactation										
Body Aches	60	41	103	66	72	66	24	48	259	56
Strength	57	39	48	31	54	50	30	60	189	41
Well being	38	26	26	17	20	18	15	30	99	21
Good for blood	3	2	7	5	-	-	4	8	14	3
During Pregnancy										
Easy delivery	2	4 5	5 3	3 6	6	12	6 12	6 19	19 4	45
During lactation										
Galactogogue	5	3	8	5	12	11	15	30	40	9
Good for health of the child	2	2	13	8	7	6	9	18	31	7
Regulation of menstrution	2	2	8	6	-	-	6	12	16	3

P/L - Pregnant/lactating

NPL - Nonpregnant - nonlactating.

if it was harmful to consume it during pregnancy and if given to eat whether they will eat it or not. As shown in Table 17, 56% of the respondents felt that it could be consumed during pregnancy without any adverse effect. Further, it was encouraging to observe that 71% in the LIG group (which was our target) considered that methipak was safe to consume during pregnancy. However 44% women commented that methipak was 'hot' and was better avoided during pregnancy. On the other hand, most of the respondents stated that methipak should be consumed during lactation. The reasons for not consuming methipak during pregnancy are listed in Table 18.

Most of the women especially from the LIG, who were young and illiterate were unaware of the reason and said that it was their custom to follow the advice of the older women in their families. Inability to buy the food was another major cause for non-consumption in this group. Women from the middle and high income groups regarded methipak as a hot food and believed that it could have an abortifacient effect. They also considered it harmful for the fetus. Many women especially the HIG stated that they found methipak medicinally bitter and therefore did not like to consume it. A few respondents felt that methipak was not needed during pregnancy since it had no beneficial effect during this period. Other reasons for not consuming methipak during pregnancy were as follows :

1. *It might cause difficult labour.*
2. *If eaten once, it had to be eaten every year. It was believed that the body becomes accustomed to methipak and if not eaten regularly body aches or pains might ensue.*
3. *Some respondents consumed other non-bitter foods which had similar beneficial effects if consumed during pregnancy and lactations such as* **sheera, suntpak** *etc.*

VII. Period, time and amounts of methipak consumed

The majority of the women started consuming methipak 10-12 days after parturition or on discharge from the hospital. In pregnancy methipak was generally consumed in the third trimester. The duration of consumption (both in lactation and pregnancy) ranged from one week to two or three months, the mode being one to one and a half months. Methipak was consumed early in the morning on an empty stomach by all the respondents during pregnancy as well as lactation. It was believed that the benefits of eating methipak were more pronounced if eaten on an empty stomach. Approximately 50 g were consumed per day.

VIII. Sharing of methipak by family members

Table 19 gives the percentages of responses for sharing of methipak with other family members. In most of the families (61%), methipak prepared for a pregnant or a lactating woman was not shared by other members of the family. Sharing was reported to be significantly higher in the middle and high income groups (40% and 72% respectively), than in the low income group (20%).

Table 17 : ***Number of respondents who considered that methipak could be consumed during pregnancy or lactation in different income groups***

Income Group	Pregnancy				Lactation			
	Yes		No		Yes		No	
	n	%	n	%	n	%	n	%
Low	44	71	18	29	59	95	3	5
Middle	78	50	77	50	155	93	11	7
High (P/L)	72	57	55	43	115	94	8	7
High (NPL)	28	54	24	46	49	96	2	4
Total	222	56	174	44	378	94	24	6

P/L - Pregnant and lactating

NPL - Nonpregnant and nonlactating.

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Table 18 : Reasons for not consuming methipak during pregnancy by subjects in different income groups

Reasons	Low		Middle		High (P/L)		High (NPL)		Total	
	n	%*	n	%	n	%	n	%	n	%
Hot food	24	19	51	42	40	66	13	52	128	38
Not good for child	11	8	24	20	19	31	9	36	63	19
Cannot afford	38	29	9	7	-	-	3	12	50	15
Medicinally bitter	21	16	26	21	32	52	7	28	86	25
No advantages	3	2	9	7	18	29	2	8	32	9
Any other	1	1	6	5	8	13	-	-	15	4
Don't know	81	62	41	34	20	33	4	16	146	43
No. of women consuming Methipak during Pregnancy	18		33		48		25		124	
No. of women who do not consume	130		122		61		25		338	

P/L - Pregnant - Lactating; NPL - Nonpregnant - nonlactating.

*The total percentage may exceed 100 due to multiple responses.

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Table 19 : Sharing of methipak by other memebers of the family in different income groups

Income Group	Shared		Not shared	
	n	%	n	%
Low (148)	30	20*	118	80
Middle (155)	62	40	93	60
High (P/L) (109)	51	47	58	53
High (NPL) (50)	36	72*	14	28
Total (462)	179	39	283	61

P/L - Pregnant - lactating; NPL - Nonpregnant nonlactating

* Significantly different from each other (Chisquare - HIG Vs MIG = 13.94, P <.001; df - 1).

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IX. *The constituents and the method of preparation (the household recipe) of methipak*

Since methipak emerged as a popular lactation food and was also consumed to some extent during pregnancy and since the subsequent product development was based on methipak, information was collected from a subsample of 65 representative subjects regarding the ingredients and the method of preparation of methipak. It was found that each subject prepared the product with some variation depending upon individual taste. However, there were certain basic features common to all the recipes. These are described as under :

Ingredients

*The major ingredients and the amounts used in the preparation of methipak are listed in Table 20 and 21. The ingredients common to all recipes were fenugreek seed powder, ghee or clarified butter and jaggery (crude brown sugar) or sugar. Flours of wheat (**Triticum aestivum**), bengal gram (**Cicer arietinum**) and black gram (**Phaseolus mungo**), either singly or in combination, were the next most common ingredients. Other constituents were dried dessicated coconut (kopra), edible gum (gum acacia), herbs and spices, seeds of poppy (**Papaver somniferum**) and dried fruits and nuts. As indicated in Table 20, a wide variation was found in the amounts of various ingredients used. For this reason, the modes are also given alongwith the means. In most recipes, fenugreek seed powder was added at a level of 8% by weight. The amount of fat used was quite high - the mode being 26%. The jaggery or sugar was added at a level of 17% and flour at a level of 20%.*

A powder of various herbs and spices was used in small amounts (generally less than 10%). Most of the respondents obtained a ready-made powder of the herbs and spices from the market. A few shopkeepers (grocery shops) who sold the spices were contacted and asked about the constituents of the spice powder. Table 21 lists the most commonly used herbs and spices in methipak, along with their botanical names and functions as reported in the literature (CSIR, 1948 - 1976; Ray, Gupta and Roy, 1980).

There were some differences in the ingredients used for the methipak prepared for pregnancy as against that for lactation. While the major ingredients (fenugreek seed flour, ghee, sugar) were common to both, the recipe for pregnancy methipak did not contain coconut, spices and gum. It was believed that spices were 'hot' and gum adhered the fetus to the uterus.

Table 20 Ingredients used in the preparation of methipak and their functions

Ingredients	Amount (%)			Functions (known and ascribed)
	Mean ± SD	Range	Mode	
Fenugreek seeds	12.0 ± 9.5	2-50	8.00	Rich in protein (26 g); lysine (8%) of total protein and iron (14 mg %) Galactogogue, reduces body aches, good for menstrual irregularies, rheumatism.
Ghee or Clarified butter	27.0 ± 9.3	7-54	26.0	Energy.
Jaggery or Sugar	24.0 ± 7.8	12-47	17.0	Energy, taste.
Flour Wheat / Bengal gram / Black gram	20.0 ± 14.8	4-42	20.0	Taste, energy, protein.
Coconut*	9.0 ± 6.9	4-39	8.0	Tonic, laxative, diuretic, prevents gastrointestinal irritation.
Gum*	5			Demulcent (allays irritation & soothes inflammation). Prevents urethral discharge.
Poppy seeds*	5			Demulcent, good for constipation.
Spices*	5			See Table. 21.

*Generally not used for methipak prepared for pregnancy.

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Table 21 : Herbs and spices used in the preparation of methipak and their functions

Herb or Spice (Common and Botanical Name)	*Functions or Condition for which prescribed*
Ashwagandha (Withania somnifera)	*Prescribed for female disorders, rheumatism, promotes growth of normal tissue after surgery, abortifacient.*
Caltrops (Tribulis terrestris)	*Respiratory trouble, abdominal swelling, urinary diseases and calculi, diuretic.*
Asparagus (Asparagus adscendens and Asparagus racemose)	*Diuretic, demulcent, oedema, uretharal discharges, abdominal swelling, respiratory trouble, galactogogue.*
Dill (Anethum sowa)	*Carminative, specially good for flatulence of children.*
Negonda (Vitex negundo)	*Tonic, febrifugal, expectorant and diuretic, good for dyspepsia, rheumatism, treatment of foetid discharge.*
China root (Smilax china)	*Venereal and rheumatic disorders.*
Nutmeg and Mace (Myristica fragrans)	*Stimulant, carminative, astringent, stomachache, nausea, vomiting, tonic.*
Nagkesar (Mesua ferea)	*Astringent, stomach-ache, causing sweat.*
Salep (Orchis latifolia)	*Tonic, good for diarrhoea, dysentry, chronic fever.*
Pepper (Indian long pepper) (Piper longum roots)	*Respiratory tract disorders (cough, asthma bronchitis), analgesic, carminative, tonic and hematinic, emmenagouge and abortifacient anthelminthic.*
Pepper (Black pepper fruits) (Piper nigrum)	*Stimulant, good for weakness following fever* *Retards development of rancidity in oils and fats.*

Table 21 Contd..

Herb or Spice (Common and Botanical Name)	*Functions or Condition for which prescribed*
Bonduc nut (Caesalpinia crista)	*Tonic, antipyretic,, febrifuge, anthelminthic.*
Vanslochan (Bembusa arundinaera)	*Cooling, tonic.*
Dried ginger (Zingiber officinale)	*Carminative, stimulant to gastrointestinal tract, flatulence and colic, as antidepresent factor, stimulates the heart, antioxidant.*
Toothache tree (Zanthoxylum alatum)	*Carminative, stomach-ache, anthelminthic, dyspepsia, diuretic.*
Cardamom (Elettaria cardamomum)	*Induces bleeding, cleansing and antiseptic, indigestion, colic pain.*

Equal amounts of each herb and spice are mixed to get the powder.

Sources : *CSIR (1948); Ray et al., 1980.*

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The method of preparation

The flour was roasted on a low flame in a frying pan with a little ghee till the roasted aroma developed. A syrup was made by melting the jaggery with the rest of the ghee. To the hot syrup, roasted flour, raw fenugreek powder, desiccated coconut, spice powder and fried, crushed gum were added. The contents were mixed well and were handshaped in the form of round balls of approximately 50 g each.

DISCUSSION

Traditional practices and special diets for women during the post partum and lactation period have been in existence from times immemorial and are firmly entrenched in its regional culture (Gopaldas et al 1975). In some other countries also special diets are prescribed for pregnant and lactating mothers (Osman, 1985; Geissler et 1978; Tan & Wheeler 1983). According to Katona-Apte (1977), a study of the cultural value system concerning food can offer a possible explanation for the poor nutritional status of the pregnant and lactating women and can also be helpful in predicting the degree of acceptance and discerning the nature of resistance to any systemic and developmental changes regarding diet and other food-related health aspect.

In the present study, there was a concept of consuming special diets during the post partum and lactation periods. The concept of consuming special foods in pregnancy was not so strong. Similar findings are reported by PFNDAI (1969), who conducted a survey in Maharashtra and Gujarat. Among Maharashtrians, the concept of a special food during lactation was found to be quite strong (50% of the housewives interviewed), though less so for pregnancy foods (5% of the housewives interviewed). The popular nursing foods were methipak, **laddu,** *and* **sheera** *(see glossary). The Gujarati concept of nursing foods was even stronger (60% of the housewives interviewed) and they had distinctly different formulations of a special food for pregnant women. A variety of foods such as* **sheera, Gunderpak,** *Methipak,* **Suntpak** *etc. were used. Special foods during pregnancy and lactation are also consumed in other parts of India. In Karnataka (Khanum and Umapathy, 1976), milk and saffron were consumed during pregnancy. In lactation, ghee, milk and dry coconut were believed to give warmth and strength; garlic, pepper, betal leaves and certain varieties of greens were considered as galactogogues.*

Likewise, in Tamilnadu and Kerala pasty preparations called **lehiyams** *are specially used. These consist of palm jaggery laced with asafoetida and various herbs and species (PFNDAI, 1977).*

In Varanasi, women received during postpartum period, a decoction of turmeric, ginger and jaggery (Agarwal et al, 1980).

Methipak was found to be a popular lactation food in the present study. The traditional methipak was a bitter-sweet confection of cereal and pulse flour, butter, fat, sugar or jaggery and several other ingredients. These ingredients make methipak a food rich in iron, protein and energy, the three most important nutrients usually deficient in the diets of pregnant and lactating women. Fenugreek seeds contain 14 mg% of iron and 26 g% protein (ICMR, 1981) of which 8% is lysine (Shankaracharya and Natarajan, 1972). Thus it is a rich source of lysine which is a limiting amino acid in the staple cereals, namely wheat and rice, eaten in Western India. Fenugreek powder mixed at about 12% level in the recipe of methipak, raised the amino acid or the chemical score (FAO/WHO, 1973) of wheat flour from 49.4 to 77.8. Ghee and sugar make it an energy dense food product supplying about 500 Kcal per 100 g.

The practice of consuming methipak by the majority (74%) of women from the low income group was quite encouraging since they were our target for food supplementation. Methipak was considered a special food, more for lactation than for pregnancy because of the belief that it is a hot food and may have an abortifacient effect. Similar belief has also been reported by PFNDAI (1977). Khare, et al (1983) have reported mild antifertility effects in rats fed ethereal extract of fenugreek seeds in a dose of 25 mg/kg body weight. The dose level in terms of fenugreek powder has not been reported. It has also been reported that fenugreek seeds are rich in diosgenin, a raw steroid that is an essential component of oral contraceptive drugs (Shankaracharya and Natarajan, 1972). It is possible that the antifertility effects observed by Khare et al (1983) were due to this steroid. However experiments conducted on rats (Ref. Chapter 3) have failed to show any antifertility effect or adverse effects on the birth outcome in terms of litter size or fetal weight when fenugreek seed powder was fed at levels of 5% or even 20%.

A major reason for non-consumption of methipak among the low income group women was its high cost. The approximate cost of 100 g of methipak at present ruling prices of ingredients would be Rs. 2/- or about 20 us cents.

The practice of consuming methipak by all family members in winter might be considered a negative aspect in its promotion as an exclusive mother food. However, the consumption during winter was least in the low income group families which was our main target.

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Methipak was not only a good source of several nutrients, but was considered to possess numerous therapeutic properties which were ascribed to fenugreek seeds and natural herbs and spices (CSIR, 1948-76; Watt et al; 1962; Ray et al 1980). Several Ayurvedic preparations containing fenugreek seeds are recommended for use in the treatment of diarrhea of puerperal women, dyspepsia and rheumatism (Nadkarni, 1954). The fenugreek seed also has analgesic properties and is prescribed for relief from body pains and aches (Acharya, 1947). It is believed to stimulate the appetite and prevent constipation and is recommended for treating the nausea of pregnancy. Interestingly, fenugreek seeds are added to a thin porridge called ***'nasha'*** *which is prescribed for lactating women in Sudan (Osman, 1985). It is believed that 'nasha' contains factors which increase the amount of milk produced. This suggestion appears to be supported by some studies in which the oil extracted from fenugreek has been found to promote lactation in rats (El Reidi and Shahat, 1944; El Reidi et al, 1954).*

The herbs and spices used in the preparation of methipak are also reported to have several medicinal properties. Thus, most of the beliefs regarding the beneficial effects of methipak, such as being good for body-aches and increased secretion of milk, seem to be supported by literature.

In lactation, methipak was consumed for a period of one to one and a half months. This is generally considered as the confinement period wherein the mother needs special care and rest. In a study conducted in Sudan, Osman (1985) reported that majority of the subjects believed that diet should be changed during the postpartum period to compensate for loss during delivery and for the production of more milk. This period lasts for 40 days in which the mother should not do any household work and a special diet of high protein, high energy food is given to her.

In pregnancy, methipak was consumed only in the third trimester. Although, the dietary requirements in pregnancy are increased right from the first trimester, supplementation is most important in the second trimester onwards. However studies in which the diets of the pregnant women were supplemented in the third trimester showed a positive effect on the birth weight of the newborn (Lechting et al, 1979; Tontisirin et al 1983).

The approximate amount of the traditional methipak consumed in one day was on an average 50 g. This was eaten on an empty stomach in the morning. The amounts eaten and the belief that methipak should be eaten only once in the morning might pose a problem in giving enough quantity (about 200 g) of the supplement

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which would fully bridge the energy gap of about 800 to 1000 Kcal. However, it has been recently reported that among malnourished Thai mothers, supplementation of about 350 Kcal daily during the third trimester significantly improved maternal weight gain and birth weight of the newborns (Tontisirin et al 1983).

The most important finding of this survey was that methipak prepared for the pregnant or lactating woman was generally not shared by other members of the family. Sharing was minimal in the low income group. This was a positive finding since the main purpose of developing a distinctive foodstuff for maternal supplementation was to prevent sharing of the supplement. It has been reported by the PFNDAI (1977) that sharing of methipak and methi biscuits occured in only 10% cases as against sharing of other sugar rich foods which was much higher at 25%.

CONCLUSION

The major positive attributes of methipak were (1) its high acceptability specially among the women from the low income group (our target group for supplementation) (2) its medicinal properties which would eliminate the psychological inhibitions in the mothers about consuming it themselves; and (3) minimum sharing characteristics. Due to these properties of methipak, it appears to have high potential for use as a supplement for underprivileged mothers. However, there were some reservations about its use in pregnancy and it was believed by a few respondents that it could cause abortions if consumed during pregnancy. This belief needed to be tested before formulating any food product based on methipak. Also because of the belief that it should be consumed in the morning, which would lead to problems of intake of adequate amounts, the traditional methipak needed to be modified to a food which could be consumed at any time of the day.