

# **Food Preference and Avoidance Beliefs during Pregnancy and after Childbirth in Matlab, Bangladesh**

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## **Introduction**

Health related food beliefs are widespread everywhere. Most societies follow traditional definitions about food, including who should or should not eat certain foods, at different times, what foods prevent or cure diverse maladies and what foods are harmful. While some cultural practices forbid the intake of some foods, other practices advise increasing the consumption of certain items. Dietary changes during pregnancy are commonly referred to in anecdotes and literature<sup>1,2</sup>. In parts of India and Bangladesh there is a prevalent belief that only a small amount of food should be eaten during pregnancy so that the baby is small and therefore, easier to deliver<sup>3,4</sup>. On the other hand, belief that extra food should be eaten during pregnancy is prevalent in parts of India and the Pacific region<sup>3,5</sup>. Throughout much of Asia there is a period of confinement after birth which is accompanied by dietary

prescriptions and taboos. This time is believed to be unhealthy for a new mother and requires that she regulates food intake to ensure regain her strength and health<sup>6</sup>. Korean women eat primarily seaweed soup and rice which is believed to be the only food a new mother can tolerate<sup>(7)</sup>. Among the tribal Orang Asli of Malaysia, women do not eat fish, flesh and salt for one month after childbirth<sup>8</sup>. In the Indian city of Mysore, lactating women avoid fruits, potatoes, pumpkin, green vegetables, eggs and pulse while they regard pepper, betel leaves, garlic, mutton, milk and dried coconut as especially suitable<sup>9</sup>.

The usual diets of women in rural Bangladesh is said to be nutritionally inadequate, and the special needs of pregnancy and lactation seem to have received little consideration. This paper seeks to analyse survey data about women's beliefs related to food preference and food avoidance as well as their reasons for such beliefs during pregnancy and after

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childbirth in Matlab, a rural area of Bangladesh. The nutritional implications of food preference and food avoidance for maternal and child health have been examined.

### **Materials and Methods**

The study began with a survey of 531 women in the early and late pregnancy stages carried out between February and April, 1982 in the Demographic Surveillance System (DSS) of Matlab Project of International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B). The women belonged to mixed parity couples and were identified from 46 randomly selected villages of the Maternal and Child Health and Family planning (MCH-FP) Project and its comparison area under DSS where systematic registration of events of birth, death and migration had been continuing since 1966<sup>10</sup>. After the initial survey, the women were followed bimonthly till term and around 10th and 45th post-partum days. The information herein was gathered from interviews based on structured and open-ended questionnaires administered in the local Bengali language, by trained interviewers. All the interviewers were married women who used to live in and

around the respondents' villages and had 8 to 12 years' formal education. Most study participants were illiterate. The study covered demographic and socioeconomic information focussing on the practices of traditional birth attendants<sup>11</sup> and customs related to childbirth<sup>12</sup>. Food preference and avoidance beliefs during pregnancy and after childbirth including the reasons for such food preferences and avoidances were solicited. As part of the first interviews during pregnancy and the postpartum period women were asked to name the foods they would prefer or avoid and to give their respective reasons. Whether the respondents actually consumed or would have avoided the foods they had named earlier was verified in the subsequent interviews.

### **Results**

Decrease in food intake was favoured by 66 per cent, increase by 14 percent and no changes by 20 percent of the pregnant women (Table 1). The main reasons for decreased food intake were mentioned to be physical discomfort (65 per cent) and increased difficulty to work or move around (28 per cent). The main reasons for increased food intake were stated to be a

mother's health consideration (82 per cent) and health consideration of both a mother and her foetus (18 per cent).

Women expressed preference for milk, eggs, cat fish (*Heteropneustus fossilus*), climbing perch, chicken, pigeon, orange, banana, apple, pineapple, pear and tomatoes during pregnancy as well as after childbirth (Table 2). Women's preference of these foods (except pigeon) as well as their stated consumption was more frequent during pregnancy than after childbirth. Duck, mutton, beef, bird, uncooked rice, burnt earth from oven, tobacco ash, syrup and yogurt were less preferred during pregnancy. Black-pepper, cumin seed powder, coriander seed powder, refined butter, honey, ball of sweet or hot food, boiled water, flattened rice and rice with salt were less preferred foods after childbirth.

The most important reason for preference of fish, milk, meat, eggs, fruits and vegetables was stated to strengthen mothers during pregnancy and to regain their strength after childbirth (Table 3). The less important reasons for such food preference during pregnancy were stated to be wellbeing of mother and or

foetus and to produce adequate breast milk after child birth. Pregnant women's special liking and the appetizing qualities of foods were stated reasons for preference of uncooked rice, burnt earth from oven, tobacco ash, syrup and yogurt. An important reason for women's preference of black pepper, cumin seed powder, coriander seed powder, refined butter, honey, ball of sweet or hot food, boiled water, flattened rice and rice with salt was stated to heal their post-partum wound.

Women stated avoidance of snake headed fish (*channa marulius*), green barb, sheat fish, chick-pea, pumpkin leaves, cucumber, chillies, arum, onion, green pineapple, gourd leaves, gourd and duck during pregnancy and after childbirth (Table 4). Women's stated avoidance of such foods was more frequent after childbirth than during pregnancy. *Cirrhina mrigala*, eel, green coconut water, pumpkin, wild arum and mutton were stated to be avoided during pregnancy. Hilsa, snake headed fish (*Channa punctatus* and *channa striatus*) attentive carplet, dry fish, sweet-pumpkin and tamarind were stated to be avoided following childbirth.

**Table 1.** Pattern and reasons for change in food intake among pregnant women in Matlab, Bangladesh

Pattern of change in food intake	Percent	Reasons for change in food intake	Percent
Decrease (N=350)	66	Physical discomfort (N = 228)	65
		Increased difficulty to work or move around (N= 96)	28
		Other (N = 26)*	7
Increase (N=77)	14	Good for mother's health (N = 63)	82
		Good for health of mother and foetus (N= 14)	18
No change (N= 104)	20		
Total (N= 531)	(100)		

\* Loss of appetite easy for digestion.

**Table 2.** Food preference and food consumption of women during pregnancy and after childbirth in Matlab, Bangladesh.

Name of food	Preference reported by women		consumption reported by women	
	During pregnancy (N = 531)	After childbirth (N = 516)	During pregnancy (N= 531)	After Childbirth (N = 516)
	Percent	Percent	percent	Percent
Milk	52.5	35.9	42.9	23.6
Egg	40.9	25.4	27.9	13.8
(Fish):				
Cat fish*	31.1	26.6	21.5	9.7
climbing perch	27.9	22.1	20.5	8.7
Other fish**	15.4	3.9	12.1	2.1
(Meat):				
Chicken	26.0	20.0	18.5	9.1
Pigeon	12.2	16.1	7.7	5.8
Other meat***	9.0	-	5.3	-
Fruits and vegetables****	33.7	4.3	19.2	2.9
Hot spices*****	-	22.5	-	21.9
Refined butter and honey	-	21.5	-	20.0
Other foods	3.6*	12.4*	2.8	11.8

\* Heteropneustus fossilus \*\* Cat fish (clarius batrachus), snake headed fish

(Channa striatus), hilsa and borrowign gobies\*\*\* Duck, mutton, beef and bird

\*\*\*\* Orange, banana, apple, pineapple, hog-phum, guava, papaya, pear, tomatoes, potatoes, spinach etc.

\*\*\*\*\* Black pepper, cumin seed powder and coriander seed powder.

+ Uncooked rice, burnt earth from oven, tobacco ash, syrup and yogurt.

++ Ball of sweet or hot food, boiled water, flattened rice and rice with salt.

**Table : 3** Reasons for food preference for women during pregnancy and after childbirth in Matlab, Bangladesh.

Name of food	Total no of women regpon ded	Reasons for preference during preganacy (%)			Total no of women regpon ded	Reasons for fod preference during preganacy (%)			
		stren- gthens mother	Well- being of mother and or foetus	Other *		Regains mother's	Produces adequate breast milk	Heals wound of mothe	Other*
Fish	395	66.8	32.4	0.8	271	57.6	39.8	1.1	1.5
Milk	279	70.3	26.5	3.2	185	81.6	10.9	4.3	3.2
Meat	251	62.2	35.8	2.0	186	90.3	4.3	3.2	2.2
Egg	217	64.5	33.6	1.9	131	80.9	10.7	4.8	3.8
Fruits and vegetable	179	65.9	26.8	7.3	22	56.1	4.5	36.4	-
Hot spices*	-	-	-	-	116	1.7	0.9	91.4	6.0
Refined butter and honey	-	-	-	-	111	4.5	1.8	83.8	9.9
Other foods	19++	6.3	-	73.7	64+++	-	-	95.3	4.7

\* Mother's special liking and appetizing.

\*\* Develops child's brain, prevents "Sutika" of mother and stomach pain of child

+ Black pepper, cumin seed powder and coriander seed powder.

++ Uncooked rice, burnt earth from oven, tobacco ash, and yogurt.

+++ Ball of sweet or hot food, boiled water, flattened rice and rice with salt.

**Table 4.** Food avoidance of women during pregnancy and after childbirth in Matlab, Bangladesh

Name of food	Avoidance reported by women during pregnancy (N=531)	Avoidance reported by women during childbirth (N=516)
	Percent	Percent
<b>Fish:</b>		
Cirrhina mrigala	22.6	-
snake headed fish*	14.1	31.4
Green barb	7.7	32.6
Sheat fish	7.5	16.1
Eal	5.5	-
Hilsa	-	5.8
Snake headed fish**	-	4.6
Attentive carplet	-	4.5
Dry fish	-	3.7
Snake headed fish***	-	2.3
Other fish ****	1.9	14.1
Green coconut water	16.4	-
<b>Vegetables:</b>		
Chick-pea	7.0	54.3
Pumpkin	3.2	-
Wild arum	2.4	-
Sweet pumkin	-	35.5
Sweet pumkin	-	35.5
Tamarind	-	30.6
Other vegetables *****	5.1	9.9
<b>Meat:</b>		
Mutton	3.2	-
Duck	1.5	2.3

\* Channa marulius \*\* Channa punctatus \*\*\* Channa striatus

\*\*\*\* Pangasias, burrowing gobies, head of climbing perch, carp fish etc.

\*\*\*\*\* Pumpkin leaves, cucumber, chillies, arum, onion, green pineapples, gourd leaves, brinjal, plum and gourd etc.

Table 5. Reasons for food avoidance of women during pregnancy and after childbirth in Matlab, Bangladesh.

Name	Total no. of women responded	Reasons for avoidance reported during pregnancy (%)				Total no. of women responded	Reasons for avoidance reported after childbirth (%)			
		Causes "Sutika" of mother	Child acquires physical or behavioral trait of food	Causes epilepsy of child	Other		Causes "Sutika" of mother	Causes child's stomach problem	Delays healing of mother's wound	Other++
Fish:										
Cirrhina mrigala	120	-	-	100.0	-	-	-	-	-	-
Snake headed fish*	75	49.3	34.7	2.7	13.3	162	94.4	0.6	3.7	1.2
Green barb	41	87.7	-	7.3	4.9	168	90.5	5.4	3.5	0.6
Shat fish	40	42.5	50.0	7.5	-	83	100.0	-	-	-
Hilsa	-	-	-	-	-	83	93.3	-	3.3	3.3
Snake headed fish*	-	-	-	-	-	30	100.0	-	-	-
Eel	29	3.4	89.0	-	6.9	-	-	-	-	-
Attentive carplet	-	-	-	-	-	23	100.0	-	-	-
Dry fish	-	-	-	-	-	-	-	-	-	-
Snake headed fish***	-	-	-	-	-	19	84.2	15.8	-	-
	-	-	-	-	-	12	83.3	-	16.7	-
Other fish*****	10	20.0	30.0	-	50.0	73	95.9	1.4	-	2.7
Green coconut water	87	1.2	95.3	21.6	2.3	-	-	-	-	-
Vegetables:										
Chick-pea	37	73.0	-	5.9	5.4	280	87.5	10.0	2.5	-
Pumpkin	17	76.5	-	-	17.6	-	-	-	-	-
Wild arum	13	-	100.0	-	-	-	-	-	-	-
Sweet pumpkin	-	-	-	-	-	183	87.4	10.4	2.2	-
Tamarind	-	-	-	-	-	158	84.8	1.3	13.3	0.6
Other vegetables *****	27	18.6	40.7	-	40.7	51	23.5	54.2	13.7	17.6
Meat:										
Mutton	17	-	70.6	-	29.4	-	-	-	-	-
Duck	8	-	87.5	-	12.5	12	33.3	66.7	-	-

\* Channa marulius\*\* Channa punctatus\*\*\* Channa striatus

\*\*\*\* Pangasias, burrowing gobies, head of climbing perch, carp fish etc.

\*\*\*\*\* Pumpkin leaves, cucumber, chillies, arum, onion, green pineapple, gourd leaves, brinjal, plum, gourd etc.

+ Possessed by evil spirit, causes itching and cold to child: rheumatism, anaemia and burning to mother.

++ Causes rash in child, itching, dysentery and cough of mother.

**Table 6.** Duration of food avoidance of women after childbirth in Matlab, Bangladesh

Name of food	Total no. of women responded	Duration (weeks) of avoidance reported after childbirth			
		Mean	Median	Minimum	Maximum
<b>Fish</b>					
Green barb	168	12	13	1	72
Snake headed fish+	162	18	13	1	72
Sheat fish	83	14	13	1	72
Hilsa	30	8	6	1	12
Snake headed fish++	29	15	13	1	72
Attentive carplet	23	11	13	3	13
Dry fish	19	8	4	2	24
Snake headed fish+++	12	1	-	1	2
Head of climbing perch	8	10	13	1	13
Other fish +++++	65	5	1	1	16
	12	13	13	4	24
<b>Dluck meat</b>					
<b>Vegetables</b>					
	280	14	13	1	72
Chick-pea	183	12	13	1	72
Sweet pumpkin	158	13	13	1	72
Tamarind	15	14	13	1	48
Chillies	10	6	3	2	12
Gourd leaves	2	-	-	2	8
Plum	2	-	-	3	12
Brinjal	2	-	-	-	12
Onion	1	-	-	-	1
Gourd	19	7	11	1	12

+ Channa marulius

++ Channa punctatus

+++ Channa striatus

++++ Pangasias, burrowing gobies, carp fish, etc.

+++++ Pumpkin leaves, cucumber, arum, green puneapple etc.



The most important reason for avoidance of snake headed fish (*Channa marulius*, *Channa punctatus* and *Channa striatus*), green barb, sheat fish, hilsa, attentive carplet, dry fish, chick-pea, pumpkin, sweet pumpkin, tamarind etc. during pregnancy and or after childbirth was stated to prevent attack of "Sutika" (Table 5)—a disease syndrome characterized by symptoms of diarrhoea, dysentery, dizziness, constipation and weight loss in mother. *Cirrhina mrigala* was stated to be avoided during pregnancy as it was believed mainly to cause epilepsy to a newborn baby. The most important reason for avoidance of sheat fish, eel, green coconut water, wild arum, mutton and duck during pregnancy was stated to be fear of a newborn child acquiring physical or behavioural trait of these items. An important reason for avoidance of pumpkin leaves, cucumber, chillies, arum, onion, green pineapple, gourd leaves, brinjal, plum, gourd and duck after childbirth was to prevent child's stomach problem.

The highest median duration of post-childbirth food avoidance would be 13 weeks for green barb, snake headed fish, (*Channa marulius* and *Channa punctatus*), sheat fish, attentive carplet, head of climbing perch, duck meat, chick-pea, sweet pumpkin, tamarind and chillies and the

longest avoided would be snake headed fish (*Channa marulius*) for a mean duration of 18 weeks (Table 6). The overall avoidance duration for foods would vary from 1 to 72 weeks after childbirth.

### **Discussion**

The basic rural diet in Bangladesh consists of cooked rice supplemented by curries containing fish, vegetables, starchy roots, pulse and meat. Rice constitutes the bulk of the food intake. The substitute of rice is wheat, primarily taken when rice is not available. This study showed that the majority of the pregnant women chose to decrease food intake. The pregnant and post-partum women stated preference of milk, meat, eggs, cat fish (*Heteropneustus fossilus* and *Clarius batrachus*) and climbing perch which are considered as prestigious items since these are expensive and appealing to the taste. The list of preferred foods also included orange, banana, apple, pineapple, pear etc. which foods because of their high cost are consumed minimally. Cat fish and climbing perch are said to have special medicinal value and higher nutritional value than other fish. These fish can be stored in a small amount of water i.e., fish which can be kept alive in a small

reservoir for future consumption. For recuperating from any illness, particularly after childbirth, a curry prepared with these fish is considered beneficial due to the belief that they help the mother to increase her blood supply by compensating for blood lost during delivery and thereby help regain strength. Women expressed avoidance of many foods—various fish, green and leafy vegetables which are less expensive but nutritious.

There are evidences that apart from individual food preference and avoidance, maternal and child nutrition in rural Bangladesh is determined by women's status in the family, their reproductive behavior and seasonal availability of food. Females are found to consume less food than do males in terms of quality and quantity<sup>(13)</sup>. The per capita food intake of pregnant women is estimated to be less than that of their non-pregnant counterparts and pregnant women are the most nutritionally deprived family members<sup>(14)</sup>. Maternal and child nutritional status exhibit seasonal variations which are associated with low levels of family food availability: rice prices are highest, household food stocks lowest and agricultural demand weakest in August-October, the

months preceding the major harvest<sup>(15)</sup>. Total food intake is higher in the first six months of the year than in the last six months; except for fish and leafy vegetables intake of almost all foods is found to be the lowest in late October and early November i.e. before the major rice harvest<sup>(16)</sup>.

Mothers believe that consumption of the preferred foods give them strength during pregnancy, produce healthy foetuses and help regain their strength lost during labour due to profuse bleeding. Hot spices are specially preferred by post-partum mothers. These spices are believed to help in the process of mothers' wound healing following delivery. Similar food preference had been found in previous works<sup>(17-18)</sup>. Some common foods- various snake headed fish, green barb, sheat fish, hilsa, attentive carplet, chick-pea, pumpin, sweet pumkin and tamarind are avoided by pregnant and post-partum mothers for fear of "Sutika", a post-partum disease syndrome characterized by symptoms of anaemia, diarrhoea, dysentery, dizziness, constipation and weight loss. Cirrhina mrigala is avoided during pregnancy to protect the newborn babies from having attacks of epilepsy. The local

Bengali term for the disease epilepsy is "mrigi", which is believed to cause a fatal illness of a newborn child if a pregnant mother eats this fish. Sheat fish, eel, green coconut water, wild arum, mutton and duck are avoided by pregnant mothers to protect their newborn children from acquiring certain undesirable physical or behavioral traits of these items. Avoided are also pumpkin leaves, cucumber, chillies, arum, onion, green pineapple, gourd leaves, brinjal, plum, gourd etc. for causing rheumatism, anaemia and burning during pregnancy. These foods are avoided after childbirth for fear of diarrhoeal or stomach problem in the newborn babies through breast milk. Similar food avoidances had been noted earlier elsewhere (19,20).

Mother's beliefs in food avoidance imply that they consider some foods as "beneficial" or "good" and other foods as "harmful" for their own health as, well as of their foetuses or newborn babies. Due to the influence of such beliefs they stated preference of some foods and avoidance of some other foods. But their beliefs in food preference and food avoidance could not be consistently held. For example, snake headed fish (*Channa striatus*) and duck were

preferred during pregnancy but avoided after childbirth. Mutton was preferred by some mothers but avoided by other mothers during pregnancy. Besides, the preferred foods included costly items which they could not normally afford and the avoided foods included inexpensive, easily available and nutritious items. Their preference and avoidance beliefs in fact greatly limited their food consumption. These beliefs are undesirable in the context of rural Bangladesh, where mothers have poor nutritional status (21).

We suggest that the concept of beneficial foods can be used to recommend consumption of available and affordable nutritious foods. The awareness that diet affects the milk produced, and therefore, influences the health of the infant, can be used to emphasize the requirement of the mother to consume more nutritious food. Nutrition during pregnancy and the post-partum period should be expanded as part of a general nutrition curriculum for health visitors, midwives and other medical personnel.

### **Summary**

Overall, women favoured decreased food intake during pregnancy. The preferred foods during pregnancy and or after childbirth mainly

comprised of milk, eggs, cat fish (Heteropneustus fossilus and clarius batrachus), climbing perch, chicken, pigeon, orange, banana, apple, pineapple, pear, tomatos, black-pepper, cumin seed powder, coriander seed power, refind butter and honey. The avoided foods mainly included cirrhina mrigala, snake headed fish (channa marulius and channa punctatus) green barb, sheat fish, eel, hilsa, attentive carplet, green coconut, chick-pea, sweet pumpkin and tamarind. Many of the women stated preference for foods most of which they could not afford to consume. Of great concern was the avoidance of some highly nutritious and or inexpensive foods including dark green leafy vegetables during the period of gestation and after childbirth for periods varying from 1 to 72 weeks.

Important reasons for food preference were (i) to strengthen pregnant mothers, (ii) well-being of mothers and or foetuses, (iii) to regain strength of post-partum mothers lost due to delivery, (iv) to produce adequate breast milk and (v) to heal wound of mothers. Important reasons for food avoidance were that if the mothers consumed some food items then (i) they would be

attacked with "Sutika"- a disease syndrome characterized by symloms of anaemia, diarrhoea, dysentery, dizziness, constipation and weight loss, (ii) the newborns would acquire physical or behavioral traits of foods (iii) they woud be attacked with epilepsy and (iv) they would suffer from diarrhoeal/ stomach problem through breast milk.

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