

Food Taboos among Nursing Mothers of Mexico

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ABSTRACT

This cross-sectional study was carried out in Guadalajara, Mexico, during 1998-1999 to identify food taboos among nursing mothers who participated in a breast-feeding support programme. The study included 493 nursing mothers who were interviewed 10-45 days after delivery. A chi-square test was used for finding an association among food taboos, mother's characteristics, and demographic variables. 50.3% of the mothers avoided at least one food in their diet after childbirth due to beliefs that it was harmful during breast-feeding. Forty-seven percent avoided three or more foods. Fruits and vegetables (62%) and legumes (20%) were the most-avoided foods. These food taboos were associated with living more than 10 years in Guadalajara city (odds ratio [OR] 1.95 [1.25-3.09], $p=0.002$), breast-feeding experience (OR 1.91 [1.18-3.12], $p=0.005$), no-prenatal information about breast-feeding (OR 1.59 [1.08-2.34], $p=0.01$), and other people's suggestion to complement breast-feeding (OR 1.61 [1.09-2.38], $p=0.01$). A supportive approach and efficient communication, taking into account mother's characteristics, might reduce the gap between scientific recommendations and nutritional practices of mothers willing to nurse their infants.

Key words: Breast-feeding; Food habits; Food taboos; Knowledge, attitudes, practice; Cross-sectional studies; Mexico

INTRODUCTION

The importance of breastmilk as the best and only food for infants aged less than six months is recognized worldwide, and also recognized is the promotion of breast-feeding as a basic food beyond six months when infants should also receive adequate complementary feeding (1,2).

The international campaign to promote breast-feeding in the Baby-Friendly Hospital Initiative has faced a number of obstacles, which mitigate or reduce the positive impact of nursing, especially during the prenatal and neonatal periods. The latter is particularly crucial to the implementation of successful breast-feeding (3,4).

Successful breast-feeding is affected by many cultural, religious, social, and family influences (5). The

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outstanding problems that have not been sufficiently examined are food taboos, myths, prejudices, false beliefs, and inadequate feeding behaviours and their relationship to the idea that eating certain foods has a potentially harmful effect during gestation and nursing (6-9).

In Mexico, health professionals and nutritionists promoting breast-feeding in the baby-friendly hospitals face difficulties due to the refusal of mothers to eat typical everyday foods because they consider these harmful, although these have an unquestionable nutritional value.

Food taboos recorded all over the world differ only in type and characteristics. In a survey carried out among the Chinese, Cambodian and Vietnamese women living in the United States, Fishman *et al.* observed that delivery produces 'excessive cooling' which needs to be offset by eating hot foods for 100 days after childbirth (10).

Trigo *et al.* investigated the food taboos of two rural localities in Brazil during pregnancy and lactation (9). The more frequent taboo was related to the simultaneous consumption of milk and fruits, such as mango, orange,

pineapple, and nuts. They also considered eating eggs and fruits together harmful, as well as a combination of meat with fish. They mentioned that "combinations are harmful", "combination kills", and "mixing together causes indigestion and vomiting." These restrictions were more frequent during the lactation period than during pregnancy.

Mahmood *et al.* looked at the demographic profiles of mothers and how these were related to their beliefs and food habits during pregnancy and nursing (11). They found that age, type of family, parity, and number of pregnancies did not have any significant effect. On the other hand, there was a significant difference between mothers of rural and urban origin. The authors supported the idea that the practice of changing the diet or eliminating specific foods seen mainly among rural mothers was due to poverty and lack of knowledge about feeding and nutrition.

Sundararaj and Pereira observed that food taboos adversely affect the daily consumption of protein, energy, and some nutrients during the first month of nursing (12). However, despite the poor intake of nutrients, women successfully fed their infants, and weight gain was satisfactory during the first month.

In Mexico, there are many beliefs and taboos regarding health, reproduction, and consumption of food. Some foods are considered potentially harmful (13-15). However, reports investigating the frequent occurrence of these food taboos during the nursing period, their geographic distribution, demographic profiles of mothers demonstrating inadequate feeding behaviours and their repercussion on the health and nutrition status of the mother and her infant have not been found.

The purpose of this report is to describe the frequency of taboos and inadequate feeding behaviour of nursing mothers whose infants were born in a baby-friendly hospital targeting the poor in the metropolitan area of Guadalajara. A second purpose was to identify the general characteristics of mothers and their socioeconomic and demographic background and to explore the association between feeding behaviour and several characteristics of the nursing mothers.

MATERIALS AND METHODS

Study subjects

An observational and cross-sectional study was carried out during 1998-1999. The study included a sample by

convenience of 493 nursing mothers who completed the inclusion criteria and whose infants were born in the Western General Hospital of the metropolitan area of Guadalajara city over a 20-month period. Women occupying bed 2 and 4 in each of the six obstetric cubicles were selected and sequentially included. None refused to participate in the study.

Mothers not living in the metropolitan area of Guadalajara were excluded because they might not be able to come for follow-up visits. During the 24-72-hour neonatal period, nursing mothers participating in the Baby-Friendly Hospital Initiative received information about feeding and nutrition. A questionnaire and a 24-hour dietary recall were filled out by one of the investigators (MIST) during the first postnatal clinical visit between the 10th and 45th day after delivery. The nursing mothers were told that the information being gathered was to identify the factors that could interfere with successful breast-feeding. From the information provided by them data on the following were obtained:

General characteristics of nursing mothers: Age, occupation, level of literacy, marital status, and number of years living in the metropolitan area of Guadalajara.

Obstetric and gynaecologic (ob-gyn) background: Number of pregnancies, number of prenatal visits, site of prenatal healthcare, previous breast-feeding experience, and prenatal breast-feeding education.

Puerperal: Type of childbirth, duration of mother-child separation during the immediate postnatal period, rooming in, viewing an educational video, and administration of liquids other than breastmilk to infants during hospitalization.

Characteristics of newborn infants: Sex, weight, length, and head-circumference.

Family characteristics: Monthly income, number of family members, number of persons sleeping in the same bedroom, and house characteristics.

Type of infant-feeding prior to the first visit: Full or partial breast-feeding.

Full breast-feeding was divided into two concepts: (a) Exclusive breast-feeding when no other liquids or solids were given, and (b) Almost exclusive when other liquids, such as juice, tea, water, or vitamins, were infrequently given along with breastmilk. It was considered partial breast-feeding when any amount of formula was given daily (16,17).

Other considerations: Age of infants when other liquids were introduced, who was responsible for this decision, and what were the reasons given.

Characteristics and number of foods avoided during lactation because the mother considered them harmful: Questions about foods were asked this way: Do you avoid any food because you are nursing? If yes, which food? The mothers spontaneously mentioned foods. The questionnaire refers to total avoidance.

Statistical analysis

A statistical description of the population was made. With Epi Info software, a chi-square test was used for identifying the association between the characteristics and the number of foods considered harmful during

type of infant feeding. Null hypothesis was rejected with a p value of <0.05.

Ethical considerations

The Bioethics Committee of the Western General Hospital of the Jalisco state reviewed and approved the protocol. The nursing mothers gave their verbal consent.

RESULTS

Of the 493 nursing mothers, 88.2% were aged 19-35 years, and 6.3% were younger; 91.1% were housewives; 51.9% had completed elementary schooling, and 6.3% were functionally illiterate; 88.6% were either married or living with a partner; 76.9% had resided for more than 10 years in the metropolitan area of Guadalajara; and 9.8% could be considered recent residents with less than five years' living in the city. In 63.9% of the cases, the yearly family income was lower than US\$ 1,500, and only in 2.8% of families, was it more than US\$ 3,000 (Table 1).

87.2% of the mothers attended at least four prenatal clinical visits. In 67.7% of the cases, medical services were provided by the community health facilities and 14.8% by the Western General Hospital. 35.9% received

Table 1. Characteristics of 493 Mexican nursing mothers

Variable	No. of mothers	Percentage
Age (years)		
<19	31	6.3
19-25	287	58.2
26-35	148	30.0
>35	27	5.5
Occupation		
Housewife	449	91.1
Employee	25	5.1
Working woman	6	1.2
Merchant	6	1.2
Housekeeper	4	0.8
Student	3	0.6
Family income (US\$/year)		
<1,500	315	63.9
1,500-2,340	116	23.5
2,341-3,000	48	9.7
>3,001	14	2.8
Education (years)		
≤3	31	6.3
4-6	225	45.6
7-9	158	32.0
High School	29	5.9
Technical	34	6.9
Professional	16	3.2
Marital status		
Married	377	76.5
Non-married*	50	10.1
Single	61	12.4
Widow	3	0.6
Divorced	2	0.4

* Living as a couple

Table 2. Obstetric background of 493 Mexican nursing mothers and health services

Variable	No. of mothers	Percentage
Number of pregnancies		
1	192	38.9
2-4	255	51.7
≥5	46	9.3
Prenatal care		
Primary health services	334	67.7
Hospital*	73	14.8
Other hospitals	79	11.9
No prenatal care	27	5.5
Prenatal education on breast-feeding		
Yes	177	35.9
No	316	64.1
Number of prenatal visits		
0	26	5.3
1-3	37	7.5
4-5	101	20.5
>5	329	66.7
Type of birth		
Vaginal	328	66.5
Caesarean section	165	33.5

* Western General Hospital

lactation with the mother's, infant's and family's characteristics, labour and childbirth, ob-gyn history, and

prenatal education about lactation. 79.1% watched the educational video. Three hundred thirty-one (67.1%) had

no prior nursing experience, even those who had had a previous child (301). One hundred sixty-two (32.9%) nursing mothers had breastfed at least one of their previous infants during four months or longer (Table 2).

With the Lobbok and Krasovec criterion (16), 71.6% of 493 infants received full breast-feeding (30.6% exclusive and 41% almost exclusive), 17% partial breast-feeding, and 10.8% received formula as initial feeding (Table 3). The decision to use an occasional

Variable	No. of mothers (n=493)	Percentage
Initial feeding		
Full breast-feeding	353	71.6
Exclusive	151	30.6
Almost exclusive	202	41.0
Partial breast-feeding	84	17.0
Non-breastfed	56	11.4
Infant formula	53	10.8
Whole cow's milk	3	0.6
Complementary water*		
No	439	89.0
Yes	54	11.0
Complementary tea*		
No	364	73.8
Yes	129	26.2
Complementary formula*		
No	335	68.0
Yes**	158	32.0

* Some infants received more than one complementary liquid food
** Only one occasion or less than once a week

supplementary bottle or partial breast-feeding was made either by mothers (51.1%), physicians (22.1%), or grandmothers (19.2%); the main reason was insufficient production of breastmilk and when an infant was suspected to be thirsty or dehydrated (65.7%) (Table 4). This decision was made in the first week by 195 mothers (39.6%), the second week by 85 mothers (17.2%), and after 15 days by 217 mothers (43.2%) (Table 3-4).

50.3% of the 493 mothers who came for their first visit within the 45th day after delivery mentioned avoiding at least one food since childbirth because they felt that it caused undesirable effects in the supply of milk or for the infant or both (i.e. decreasing supply of milk, causing infantile colic or diarrhoea). Of this group, 47.2% avoided more than two foods and 16% more than four foods. When the variables 'all fruits' and 'all vegetables' were included, 50 different foods were referred to as harmful during the first stages of nursing

(<45 days) (Table 5). When fruits and vegetables were integrated as a single group, these foods were mentioned 398 times (62%), legumes 126 times (19.6%), and meat-eggs 75 times (11.7%) (Table 6).

Mention of harmful foods while breastfeeding was associated with a longer stay in the metropolitan area of Guadalajara, for 10 years or more (41.7% vs 8.7%) (odds ratio [OR] 1.95 [1.25-3.09], $p=0.002$), with previous nursing experience vs no previous nursing experience

Variable	No. of mothers (n=344)	Percentage
Person who decided to complement breast-feeding		
Mother	176	51.1
Medical doctor	76	22.1
Grandmother	66	19.2
Aunt, mother's friend	11	3.2
Nurse, pharmacist	11	3.2
Other	4	1.2
Reason to complement breast-feeding		
Poor production of milk	144	41.9
Infant thirst—dehydration suspicion	82	23.8
Prevention or treatment of infant colic	49	14.2
Maternal illness	13	3.8
Being angry	10	2.9
Get back to work	10	2.9
Constipation of infant	7	2.0
Soft evacuations of infant	7	2.0
Illness of infant	4	1.2
Previous custom of mothers	4	1.2
Other	14	4.1

(29.6% vs 18%) (OR 1.91 [1.18-3.12], $p=0.001$), with no prenatal information vs prenatal information about lactation (38.9% vs 15.4%) (OR 1.59 [1.08-2.34], $p=0.01$) and with others' vs nursing mother's decision to complement breast-feeding (29.6% vs 20.7%) (OR 1.61 [1.09-2.38], $p=0.01$).

Other variables not associated with the mention of harmful foods were: younger mothers aged less than 20 years, maternal education, occupation, family income, civil status, parity, number of prenatal visits, watching educational video, and use of complementary feedings, such as tea, to prevent infant colic.

DISCUSSION

The study group represents the people of low socioeconomic level, who attend the Western General Hospital, one of the three most important general hospitals of the metropolitan area of Guadalajara city.

Table 5. Foods avoided since childbirth and times they were mentioned

Food*	No. of times mentioned (n=642)	Percentage
Beans	122	19.0
Chili	68	10.6
Cucumber	55	8.6
Nopales	49	7.6
Watermelon	45	7.0
Pork	35	5.4
Cabbage	31	4.8
Fruit juices	27	4.2
Potato	23	3.6
Avocado	22	3.4
Eggs	17	2.6
Coconut	15	2.3
Jicama	13	2.1
Squash	12	1.9
All fruits	11	1.7
Beef	10	1.6
Lettuce	8	1.3
Fish	8	1.3
Oils	6	0.9
Traditional appetizers	6	0.9
All vegetables	5	0.8
Pineapple	5	0.8
Banana	4	0.6
Mango	4	0.6
Guava apple	4	0.6
Strawberries	3	0.5
Tomato	3	0.5
Shellfish	3	0.5
Lentil	3	0.5
Coriander	3	0.5
Chocolate	2	0.3
Cheese	2	0.3
Green beans	2	0.3
Rice	2	0.3
Apple	2	0.3
Papaya	2	0.3
Liver	2	0.3
Milk	1	0.15
Chickpea	1	0.15
Other	6	0.9

* A mother could mention more than one food

The nursing mothers were young, had low income with elementary education, and had access to health services during pregnancy and delivery. They were participants in the educational activities of the Baby-Friendly Hospital Initiative, and the majority came for prenatal visits. Two-thirds of the population came to their prenatal

Table 6. Distribution of avoided foods

Group	No. of times mentioned (n=642)	Percentage
Fruits and vegetables	398	62.0
Legumes	126	19.6
Meat and eggs	75	11.7
Cereals and tubers	26	4.0
Oils*	6	0.9
Traditional foods**	6	0.9
Milk and milk products	3	0.5
Oilseeds	2	0.3

* Source not defined
** Mainly carbohydrates, oil, condiments, and chili

visits on more than five occasions. During these visits, one-third received information about breast-feeding through medical advice or by watching a video. These data emphasize the importance of the initial contact, patient-physician and/or obstetrician, and lack of encouragement given to breast-feeding.

As reported before (18), a small percentage of nursing mothers exclusively breastfed. However, all mothers received orientation about nursing after delivery and accepted the responsibility of deciding whether to introduce other liquids, such as water, tea, or formula, to their infants' diet although they were told about the potential interference these liquids could have on a successful breast-feeding. The majority argued that this decision was made based on some of these reasons: production of insufficient breastmilk, a perceived thirsty infant or to prevent dehydration, and to prevent or treat infantile colic. It is evident that when mothers come to their first clinical, postnatal visit, they should be oriented and carefully asked about their beliefs concerning supply of insufficient breastmilk or any other reasons for not breast-feeding exclusively and be provided additional information and support.

The study demonstrated the existence of food taboos among a high percentage of nursing mothers. Half of the mothers avoided one or more food(s) in their diets since childbirth because they were considered to be harmful to the production of milk, to provoke undesirable effects in the infants or both. Of this group of mothers who rejected several foods, the majority (73%) avoided two or more and 50% at least three specific foods. It must be emphasized that the shunned foods belonged to all the basic food groups although fruits and vegetables (62%) and legumes (20%) prevailed. This finding was disturbing because of the importance of fruits and

vegetables as a source of vitamins, fibre and non-organic nutrients, and also legumes because in Mexico this food group still represents the principal source of protein with high biological value. These dietary changes usually occur during approximately 2-4 months from childbirth.

Food taboos at specific stages of life, such as pregnancy and nursing periods, have been described in different traditional countries of Asia, Africa, and Latin America and in immigrant populations of the USA, Canada, and Australia (7-13,19-22). The underlying explanation is that birth is a moment of extreme vulnerability by excessive loss of heat during delivery. The mother should follow certain 'precautions' which prohibit the consumption of foods considered cold, such as all fruits and vegetables, and encourage the consumption of foods perceived as hot.

These taboos form part of a complex belief system derived from the medical humoral theory, and in Mexico, they can probably be traced from the Nahuatl (ancient culture in America) perspective of the cold/hot theory. Castro pointed out in a qualitative study that ethnographic sources identified the existence of a belief relating to this cold/hot theory in a large sector of the Mexican population (13). Its importance supports the idea that the hot/cold theory among Nahuas (Nahuatl culture inhabitants) is not limited to the medical aspects as in other countries, but it refers to the total environment. The coolness comes from water, while heat comes from the sun or the energy generated into plants and animals. Foods considered to be cold are: juicy fruits (lemon, lime, etc.), poultry, rabbit, bitter fruits, or thick-skinned fruits, such as avocado, the majority of vegetables, corn, and beans. Red meat, onions, and aromatic beverages are considered hot.

The human body is thought to be an organism in equilibrium where a healthy diet should include an adequate balance between hot and cold foods to neutralize each other. The pregnant woman is in a hotter state than normal, and, during delivery, excessive heat is lost. Therefore, like pregnancy, during delivery and post-delivery periods, she is considered to be in a very vulnerable state and in a fragile balance. The woman is susceptible to illness due to cold air coming in from outside or by eating cold foods. That is why eating or drinking cold foods (avocado, nopales, eggs, or tomatoes among others) represent a greater risk and should be avoided. On the other hand, some types of tea hot in nature are amply recommended.

The importance of food taboos in Mexico has been referred to in a study by Munoz *et al.*, which demonstrated that mothers of well-nourished children ate better during pregnancy than mothers who had malnourished children (14). It also showed a significant difference between these mothers regarding the beliefs of taboos and prejudices about foods and nutrition. To our knowledge, food taboos among nursing mothers of Mexico have not been investigated. It is clear from this study that, as in other countries, the number of Mexican nursing mothers avoiding foods is consistently high (9,11).

Surprisingly, nursing mothers living over 10 years in the metropolitan area of Guadalajara had a greater tendency to avoid certain foods than nursing mothers coming in from rural areas who theoretically live in a more limited cultural environment, and one would assume that they have more bias, taboos, and food myths. A possible explanation could be that when low-socioeconomic and educated rural people come to the city, they reinforce support nets where older beliefs are seen as good and of great value to prevent identity loss.

It would be more reasonable to associate food taboos with variables, such as previous nursing experience of young mothers and, therefore, exposure to the family beliefs about food and/or not having prenatal information about breast-feeding. In the long run, discussing the negative effects of taboos and improving the nutritional education among young pregnant women and nursing mothers would have better breast-feeding prognosis (23-25).

Nursing mothers who decided to complement breast-feeding had a significant percentage (20.7%) of food taboos. However, when others (physicians, relatives, or friends) participated in the decision to complement breast-feeding, the percentage of mothers with food taboos increased (29.6%).

No evidence was found to support the theory that young mothers fitting the set profile had a greater propensity towards food taboos. Their reasons for avoiding certain foods and adding others are probably multiple, and other unexplored factors must certainly exist. Additional studies that ask nursing mothers about who or what influences their beliefs are needed. A quantitative study like this cannot identify the intimate reasons or the background of these decisions.

It should be pointed out that there is almost no information about food taboos among nursing mothers

in Mexico. So, the importance of an in-depth investigation about food taboos among nursing mothers must be emphasized because these women and children aged less than five years belong to that vulnerable group of malnutrition in Mexico and other underdeveloped countries with similar background. Depriving oneself of certain foods because of taboos carries with it the potential risk of affecting the nutritional status of nursing mothers and eventually to affect that of infants (26).

Results of other local and national nutritional surveys suggest that diets of nursing mothers of low socioeconomic status are deficient in iron, zinc, and vitamins A and C (27).

Therefore, it is indispensable that health professionals become more knowledgeable about the influence the culture has on breast-feeding and dietary behaviours and convictions that might be potentially harmful or dangerous during pregnancy and lactation (28). It is also important that personnel of baby-friendly hospitals are aware of the profile of mothers with food taboos. A supportive approach and efficient communication on this topic might reduce the gap between scientific recommendations and daily feeding practices of mothers willing to nurse their infants (29,30).

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