

## Iranian Mother's Child Feeding Practices During Diarrhea : A Study in Kerman

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**Abstract:** Diarrhea as the second common pediatric disease, accounts for approximately 2,000,000 deaths per year in children less than 5 years of age in developing countries. Cultural dictates and nutritional habits in different communities increases the nutritional problems of diarrhoeal episodes. This study was aimed to investigate the practice of Kermani mothers in relation to the nutrition of their children during diarrhea. The present cross-sectional study was performed from March through July 2005 on 330 randomly selected mothers having a 6-24 months child with no underlying disease and at least one acute diarrhea episode during the last two months in her child. Data gathered by using a questionnaire filled out by interviewing subjects. Age and the educational level of subjects in contrast to their job and number of children had no effect on their practice. Most of the subjects (84.2%) breastfed their children at the time of healthy state and 80% did not give their children rich soup during diarrhea. Most of the subjects quitted giving fats (74.5%), Iron supplement (91%) and multivitamin (86%) at the time of diarrhea but 88% continued giving fruit juice. Mothers that their source of knowledge was mass media showed better practice in this regard comparing to others ( $P < 0.05$ ). Although according to the present study, mothers' practice in Iran is better in comparison to that in other developing countries (India, Pakistan, Nepal,...), we have still serious problems resulting from insufficient training programs and consequently poor knowledge that may lead to persistent improper nutritional habits. Therefore public training especially via mass media is highly recommended to decrease improper nutritional habits during diarrhea.

**Key words:** Diarrhea, nutrition, pediatric disease, nutritional habits

### Introduction

Diarrhoeal diseases are one of the major causes of disability and mortality in children less than 5 years of age throughout the world. There are 1 billion diarrhea episodes and 3,000,000-5,000,000 deaths from diarrhea each year (Behrman and Kliegman, 2004; Maqbool *et al.*, 1999). Age, immune status, malnutrition, breastfeeding, the availability of child health care centers and the level of mothers' knowledge are some intervening factors in this regard. Children with malnutrition are at 8 folds higher risk of diarrhea comparing to those with good nutritional status (Behrman and Kliegman, 2004; Zaman *et al.*, 1996). Early onset of complete nutrition in acute diarrhea especially in developing countries, where malnutrition and diarrhea are more common, has several potential benefits such as decreasing stool volume and decreasing the duration of diarrhea (Behrman and Kliegman, 2004; Walker *et al.*, 2004; King *et al.*, 2003). Whole animal milk or formula especially when mixed with other foods such as grains are tolerated better. On the other hand solid food cause delay in gastric emptying and consequently decrease intestinal motility. Soya content milks are not recommended because of intolerance (Walker *et al.*, 2004). Home fluids such as sweet drinking, fruit juices and tea are not suggested due to high osmolality, low sodium and the ratio of

sodium carbohydrates to sodium (Behrman and Kliegman, 2004; King *et al.*, 2003). In some countries (Pakistan, Ethiopia, Nepal), mothers are still faced some barriers in regard to applying complete nutrition during diarrhea (Maqbool *et al.*, 1999; Olango and Aboud, 1990; Rehan *et al.*, 2003). Considering the importance of nutrition during diarrhea, the present study was designed to investigate the practice of mothers in Kerman/ Iran in this regard.

### Materials and Methods

The present study was a cross-sectional study performed on 330 women selected randomly from women referring to 10 health care centers of Kerman (the center of the largest Iran province situated in 1000 km south of the capital) from March through July 2005. Data were gathered by a structured questionnaire, which had a satisfactory face and content validity according to an extensive literature review. The questionnaire consisted of two parts, the first being general questions regarding background variables (age, educational level, number of children and job) and the second included eight practice testing items. Each answer was given a score of 2 points for a correct practice, 1 point for a partially correct practice, and a zero for a wrong answer or no answer. A higher score indicated a more acceptable level of practice. The sum makes up the total

## Amini-Ranjbar and Bavafa: Iranian Mother's Child Feeding Practices During Diarrhea

Table 1: The practice score of studied mothers based on demographic features

Feature	Frequency			p-value
	No.	Percent	Practice score	
Age				
≤ 35	290	87.8	6.6 (2.1)	0.57
> 35	40	12.2	6.8 (2.0)	
Education				
Less than diploma	92	27.6	6.5 (2.0)	0.63
Diploma or higher	238	72.4	6.6 (2.0)	
Job				
Health care provider	5	1.5	8.20 (0.5)	0.04
Housewife	248	75.2	6.5 (2.1)	
Others	77	23.3	6.9 (2.0)	
Number of children				
1-2	246	71.5	6.5 (2.1)	0.04
>2	84	28.5	7 (1.9)	

Table 2: The frequency distribution of studied mothers based on using breastfeeding, formula feeding, ORS and supplements during diarrhea

Condition	Frequency	
	Number	Percent
Increasing breastfeeding	140	46.2
Using watery formula or diet formula	74	36.7
Using ORS	215	65.1
Continuing multivitamin	46	13.9
Continuing Iron supplement	28	8.5

Table 3: The frequency distribution of studied mothers based on mode of feeding their children during diarrhea

Food	Frequency	
	Number	Percent
rich soup	36	10.9
Fat-free soup	246	74.5
Vegetable-free soup	76	22.8
Omitting egg	164	49.6
Omitting fruit juice	42	12.6

score which ranged between 0 and 16.

The questionnaire was filled out by face to face interviewing of mothers. The inclusion criteria were giving consent for participation and having a 6-24 months child with no underlying disease and at least one acute diarrhea episode during the last two months in her child. To compare the mean of satisfaction scores according to baseline characteristics, t test and ANOVA were used. The collected data was analyzed by SPSS 12 software.

### Results

Mean age of subjects was 28.5±6.1 years. Most of the subjects had a high school diploma or higher education and less than two percent of the participants were a health care provider (Table 1) Most of them (84.2%) fed their children in healthy state with cow milk or formula as

well as their own milk. Among all subjects, 74.3% fed their children with supplementary food appropriately based on the child's age.

The practice score did not differ based on age and the educational level of subjects ( $P<0.05$ ), in contrast to the number of children (more than 2) and job (working in health care centers or not) (Table 1).

Most of the subjects gave their children ORS during diarrhoeal episode, while increasing breastfeeding was observed only in 46.2% of the subjects. Approximately the same percentage gave their children lactose free milk or watery formula (Table 2). Twenty percent of the subjects decreased solid food at the time of diarrhoeal episode and 74.5% not only omitted fat in soup but also avoided giving egg (50%). But most subjects gave their children fruit juices (Table 3). In regard to multivitamin and Iron supplement, 20% continued them.

Sources of knowledge in most studied subjects (74%) were physicians and health care personnel. Those who had acquired their knowledge from mass media, although were limited had better practice ( $P<0.05$ ) (Table 4).

### Discussion

Considering high prevalence of diarrhoeal diseases in the first two years of life, adequate nutrition during diarrhoeal episodes is of a great importance. This point especially in undeveloped countries, where malnutrition and diarrhea are more common is more significant. Considering the importance of this issue and variety of nutritional habits during diarrhea (Maqbool *et al.*, 1999; Olango and Aboud, 1990; Moawad and Saeed, 2000), the present study was designed to investigate the practice of mothers who can be considered as the most important agents in applying appropriate nutrition.

As it is observed, age and the educational level of mothers had no positive effect on their practice. This fact may be the result of continuation of improper beliefs due to poor medical instructions and insufficient information services. Better practice in mothers with two children or working in health care centers may be related to their more contact with health care personnel as good sources of knowledge and consequently obtaining more information. Health care personnel have more adequate knowledge in this regard because of being involved in receiving WHO feeding protocols and teaching them to mothers.

Although most studied subjects breastfed their children in healthy state and gave their children the supplementary food based on child age, they had many problems in regard to nutrition during diarrhea episode. Some of these problems are as follows:

- Increasing milk by 46.2% of the subjects that in spite of being more comparing to Pakistani mothers (3%) (Maqbool *et al.*, 1999), India 2000 (15.1%) (Mangala and Gopinta, 2000) is not still adequate.

## Amini-Ranjbar and Bavafa: Iranian Mother's Child Feeding Practices During Diarrhea

Table 4: The practice score of studied mothers based on their source of knowledge about nutrition during diarrhea (n=330)

Source of knowledge	Frequency		Practice score
	Number	Percent	
physician	157	47.6	6.3 (1.9)
Subject Herself and her relatives	66	20.0	6.6 (1.9)
Mass media	20	6.1	7.4 (2.9)
Health care personnel	87	26.4	6.9 (2.2)

p<0.04

- Using Lactose free milk and watery formula by only one third of our subjects.
- Using ORS, in spite of being common from many years ago, by 65% of the subjects.

This rate is comparable with the rates reported from Nepal (22%) (Moawed and Saeed, 2000), Ethiopia (20%) (Olango and Aboud, 1990) and India in 1990 (16.7%) (Sood and Kapil, 1990), Pakistan (69.7%) (Maqbool *et al.*, 1999).

It seems that lack of knowledge in population has led to faulty beliefs in relation to the mode of feeding during diarrhea, since in 52.7% of the cases nutritional advices had been provided by medical and health personnel.

Although decreasing solid food during diarrhea episode has been observed only in 20% of our cases and this rate is much less comparing to other studies done in Nigeria (48%) (Edet, 1996), Ethiopia (70%) (Olango and Aboud, 1990), India (83%) (Mangala and Gopinta, 2000) and Pakistan (65%) (Maqbool *et al.*, 1999). The same mothers decreased the quality of food by omitting fat from soup (74.4%) or omitted egg (50%). In regard to fruit juices, contrary to previous studies (Behrman and Kliegman, 2004), in the present study most of our subjects (78%) did not decrease fruit juices (Table 3).

The obtained results all are evident that continuation of improper beliefs is the result of insufficient knowledge in community. Although our subjects practice is much better comparing to the mothers' practice in all other mentioned countries, it is not still acceptable based on WHO protocols and this requires improving public knowledge and information. In order to avoid personal tastes in training programs and as in the present study the practice of mothers with mass media as their source

of knowledge was significantly better ( $P<0.05$ ) (Table 4), it is suggested that training programs be provided via mass media.

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