

Breast Feeding Practices in Pakistan

Donald E. Morisky, Snehendu B. Kar, Abdul Sattar Chaudhry¹, Kai Ren Chen,
Magda Shaheen and Kirstin Chickering

Department of Community Health Sciences, School of Public Health, University of California,
Los Angeles 650 Charles E. Young Drive South, Los Angeles, California 90095-1772, USA

¹ Ministry of Health, Government of Pakistan, Islamabad, Pakistan

Abstract : The beneficial effects of breast feeding, both for the mother and child, are well-known. However, there is evidence that breast feeding is on the decline in many developing countries. In 1991-92, a nationwide survey was conducted in Pakistan to collect baseline health information on a variety of maternal and child health issues. Several of the survey questions addressed breast feeding practices. Survey results indicate that fewer mothers are breast feeding their children, and that mothers who do breast-feed often supplement breast milk unnecessarily and/or stop breast feeding earlier. Undesirable breast feeding practices were found to be associated with urban residence, younger mother's age, and higher educational attainment. Possible explanations for the decline in breast feeding are explored and implications for the development of more effective breast feeding promotion campaigns are discussed.

Key Words: Breast feeding, behavioral determinants, urban/rural differentials

Introduction

The beneficial effects of breast feeding are well-known to health care professionals around the world. It is generally believed that breast feeding directly promotes the overall health of the child and results in decreased childhood morbidity and mortality. Breast feeding is an important determinant of the nutritional status of the child, which in turn influences growth and development (El-Zanaty *et al.*, 1992). In addition, breast feeding protects the child from diarrheal diseases by decreasing exposure to pathogens. Early initiation of breast feeding also impacts on the health status of the child because the first milk, colostrum, contains antibodies that will protect the child from disease. Prolonged breast feeding also benefits the child because mature breast milk contains additional compounds which can further strengthen the child's immune system and resistance to infection. Despite its obvious advantages, breast feeding in many developing countries is on the decline, especially in urban areas (Boerman *et al.*, 1991). An increasing number of women are supplementing breast milk with formula and/or cease breast feeding earlier (Boerman *et al.*, 1991). This trend has been attributed to a variety of factors including: Western influence, urbanization, and increased economic power combined with the increased availability of commercial milk substitutes. Many problems are associated with bottle feeding in the developing world, especially in areas where sanitation is inadequate. Because bottle feeding requires an uncontaminated water supply, both to mix the formula and to sterilize the bottle, there is a higher risk of childhood morbidity and mortality attributed to bottle feeding. A study conducted in the Philippines demonstrated that even small amounts of contaminated water can drastically increase the risk of diarrhea (VanDerslice *et al.*, 1994). Another problem is that bottle feeding does not provide the child with the immunological protection that breast milk does, placing the child at greater risk of infection. Unsupplemented breast feeding works as an effective postpartum contraceptive for the mother, allowing longer intervals between pregnancies (Kennedy *et al.*, 1989). Birth spacing benefits both the mother and the child because the mother is able to breast-feed longer and she remains healthier in general by postponing pregnancy. Previous surveys in Pakistan have concluded that breast feeding is still highly prevalent, but that mothers stop breast feeding early or begin to supplement breast milk when the child is still young (Ashraf *et al.*, 1993). Given the aforementioned benefits of unsupplemented breast feeding, it is essential to find out more information regarding knowledge, attitudes, beliefs and practices in order to develop more effective breast feeding promotion campaigns.

In 1991 and 1992, a nationwide survey was conducted to obtain information regarding the knowledge, attitudes, and practices of mothers concerning child health care in Pakistan. The purpose of the survey was to collect baseline data on a variety of issues, in order to develop effective health education program and evaluate ongoing ones. Several of the survey questions addressed breast feeding. The survey results provide valuable information regarding breast feeding practices in Pakistan. Further analysis of the results provide direction for the development of a breast feeding promotion campaign in Pakistan.

Materials and Methods

The Pakistan Health Education Survey (PHES) was conducted throughout the entire country during October 1991 through February 1992. The major objective of the survey was to collect information on health-related knowledge, attitudes, and maternal and child health concerning practices of women with children under two years of age. This information will provide baseline data on which to initiate new programs as well as to evaluate ongoing health education and service delivery activities. The design for this survey is a stratified, clustered and systematic sample of households. The universe consists of all urban and rural areas of the four provinces of Pakistan and Azad, Jammu and Kashmir (AJK), defined as such by the 1981 Population Census. The universe excluded military restricted areas, areas of D.G. Khan District, Kohistan, Chitral and Malakand Districts as well as the Federally Administered Tribal Areas (FATA). The population of these excluded areas constitute approximately 4 percent of the total population. The population of the survey covers mothers with children 2 years of age or less and is estimated to be between 6-7 percent of the total population of 120 million. A complete description of the sampling methodology is presented in an article (Morisky *et al.*, 1995). Briefly, a total sample size of 5,400 eligible respondents (women having children equal to or less than 2 years of age) was expected to provide valid reliable estimates at national level of key variables with a \pm 5% coefficient of variability at the 95% confidence level. Table 1 presents the number, percent of primary sampling areas and the total sample interviewed from each of the five provinces by urban and rural areas.

Questionnaire: The PHES questionnaire was developed by a multi-disciplinary team of experts from the Ministry of Health, including health education experts, members of the Federal Communication Advisory Group, program managers of various categorical programs (TB Control, Expanded Program on Immunization, Center for Diarrheal Disease, etc.), international agencies, and technical experts. The questionnaire was translated into the

Morisky *et al.*: Breast Feeding Practices in Pakistan

Table 1: Number and Percent of Primary Sampling Areas (PSUs) and Total Sample from Each Province

Province/Area	Urban	Rural	Total	Sample Size
Punjab	48	72	120	2400
Percent	40	60	45	
Sindh	30	30	60	1200
Percent	40	60	22	
N.W.F.P.	16	24	40	800
Percent	40	60	15	
Balochistan	12	18	30	600
Percent	40	60	11	
AJK	8	12	20	400
Percent	40	60	7	
TOTAL	114	156	270	5400
Percent	42	58	100	

Table 2: Social Demographic Characteristics

Demographic Data	N	Percent
TOTAL	5433	100.0%
Province		
Punjab	2406	44.3%
Sindh	1176	21.6%
N.W.F.P.	812	14.9%
Balochistan	640	11.8%
AJK	399	7.3%
Residence		
Rural	3167	58.3%
Urban	2266	41.7%
Age		
15 - 19	196	3.6%
20 - 24	1063	19.6%
25 - 29	1842	33.9%
30 - 34	1303	24.0%
35 - 39	740	13.6%
40 - 44	236	4.3%
45 - 49	53	1.0%
Education		
None	3953	72.8%
Primary	574	10.6%
Middle	298	5.5%
> = Secondary	608	11.2%
Monthly Income		
< RS 1,000	1727	31.8%
RS 1,000 - 1,999	1613	29.7%
RS 2,000 - 3,499	1018	18.7%
RS 3,500 - 4,999	346	6.4%
> RS 5,000	293	5.4%
Don't Know	436	8.0%

national language, Urdu, and pre-tested prior to its implementation. The content areas of the questionnaire included background socio-demographic characteristics, breast feeding practices, knowledge, attitudes and practices concerning diarrhoea, immunization, malaria and smoking. Questions concerning knowledge about AIDS, and its routes of transmission were also asked of each respondent. The following breast feeding questions were asked of each respondent and directed to the youngest child: "What milk do you give to your youngest child?"; "Did you ever breast feed your youngest child?"; "When did you begin to breast feed your youngest child?"; "How long did you breast feed your youngest child?"; "Why did you stop breast feeding your youngest child?"; "How long did you exclusively breast feed your youngest child without supplementing with other foods or liquid?"; "At what age did you begin to add solid food for your youngest child?"; The same set of questions were asked to mothers with an additional child under two years of age.

Results

Socio-demographic Characteristics: Table 2 presents the

frequency and percentages of various socio-demographic characteristics of the surveyed population. A total of 5433 women were interviewed throughout the five provinces. The largest surveyed area was Punjab with 44.3% of the total sample. The respondents are not proportionate to the population of provinces and area of residence (Urban:Rural). The sample was drawn by the Federal Bureau of Statistics, keeping in view the homogeneity and heterogeneity of populations in different provinces and areas of residence. The urban population represented approximately 60% of the sample and the rural population represented approximately 40%. The mean age of the population was 26.5 with the largest number of respondents (33.9%) falling into the age group 25-29 years followed by 24% belonging to the age group 30-34. A total of 72.8% of the respondents have no education, 10.6% have attained primary education, 5.6% have gone to middle level and 11.2 % secondary and above. Thirty-two percent of the households have less than Rupees 1000 monthly income which can be considered below the poverty line.

Breast Feeding Behaviors : Of the women surveyed, 95.4% reported ever breast feeding their youngest child. Only 3.9% of mothers had never breast fed their youngest child. Table 3 indicates that the behavior "ever having breast fed your infant" appears to be unrelated to province of residence, education level, or income. These results confirms the findings of previously conducted surveys which have concluded that 87-98% of mothers still breast-feed their infants (National Nutrition Survey, 1988).

Breast feeding patterns by type of milk: The breast feeding patterns, when examined by type of milk, presents a different story. When asked how they were currently feeding their youngest child, 73.8% of mothers were breast feeding exclusively, 21.6% were both breast and bottle feeding, and 3.9% were bottle feeding only." Comparison of the feeding patterns between provinces indicated that fewer mothers were breast feeding in the more developed provinces 69.8% in Punjab and 66.7% in AJK compared to 75.4% in the province of Sindh and 81.4% in NWFP and 80.9% in Balochistan. Use of combined breast and bottle feeding is also more popular in urban, better educated and upper income groups as displayed in Table 4.

Breast feeding initiation: Breast feeding should be initiated as soon as possible after birth to give the child the full immunological benefits of the colostrum. However, many women wait before beginning to breast feed. Only 36% of mothers began breast feeding the day they gave birth, 30.7% started on the 2nd day, and 34% started on the third or fourth day. There were significant differences in breast feeding practices among provinces, rural and urban residents, educated and non-educated, and income, as indicated in Table 5. For example, 40% of urban residents initiated breast feeding on the first day, compared with only 32.9% of rural residents.

Punjab had the lowest rate of early breast feeding initiation, only 20%. One possible explanation for the late initiation of breast feeding in Punjab may be 'that many' mothers do not believe that colostrum is milk, and they think they must wait two or three days until the milk becomes available.

Exclusive breast feeding : A child who is being breast fed does not require any additional food or liquids for the first 4-6 months of life, yet many mothers supplement breast milk with additional liquids or small quantities of food. Aside from being unnecessary, early weaning can be dangerous because it exposes the child to disease agents and may deprive the child of essential nutrients. Also, the earlier a mother begins to supplement her breast milk, the earlier she tends to stop breast feeding.

The survey indicated that 62% of mothers reported starting supplementary feeding of their children before 5 months of age. Some of the supplementary foods that were mentioned include:

Morisky *et al.*: Breast Feeding Practices in Pakistan

Table 3: Breast Feeding Behavior of Pakistani Mothers by Demographic Characteristics, Pakistan National Health Education Survey 1991-92

Demographic Data	Ever Breast-Feeding			Total	
	Yes (N= 5,183)	No (N= 211)	DK * (N= 39)	%	Valid N
PAKISTAN (Total Percent)	95.4%	3.9%	0.7%	100.0%	5,433
Province					
Punjab	95.4%	4.3%	0.3%	100.0%	2,406
Sindh	95.2%	4.1%	0.8%	100.0%	1,176
N.W.F.P.	96.7%	2.2%	1.1%	100.0%	812
Balochistan	93.9%	4.2%	1.9%	100.0%	640
AJK	96.0%	3.5%	0.5%	100.0%	399
Residence					
Rural	96.6%	2.7%	0.8%	100.0%	3,167
Urban	93.8%	5.6%	0.6%	100.0%	2,266
Age					
15-19	94.9%	4.1%	1.0%	100.0%	196
20-24	94.7%	4.2%	1.0%	100.0%	1,063
25-29	94.8%	4.6%	0.6%	100.0%	1,842
30-34	96.2%	3.1%	0.8%	100.0%	1,303
35-39	96.4%	3.2%	0.4%	100.0%	740
40-44	97.5%	2.5%	0.0%	100.0%	236
45-49	90.6%	5.7%	3.8%	100.0%	53
Education					
None	96.5%	2.7%	0.8%	100.0%	3,953
Primary	94.3%	4.9%	0.9%	100.0%	574
Middle	93.3%	6.0%	0.7%	100.0%	298
> = Secondary	90.3%	9.4%	0.3%	100.0%	608
Monthly Income					
"RS < 1,000"	95.8%	3.1%	1.1%	100.0%	1,727
"RS : 1,000 - 1,999"	95.7%	3.6%	0.7%	100.0%	1,613
"RS : 2,000 - 3,499"	95.2%	4.3%	0.5%	100.0%	1,018
"RS : 3,500 - 4,900"	94.5%	5.2%	0.3%	100.0%	346
"RS > 5,000"	92.8%	6.1%	1.0%	100.0%	293
DK *	95.6%	4.4%	0.0%	100.0%	436

* DK : Do Not Know

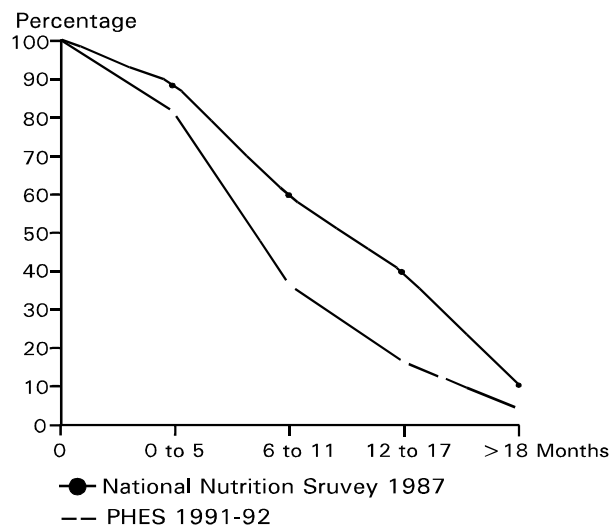


Fig. 1: Duration of breast feeding of youngest child: National Nutrition Survey 1987 and Pakistan Health Education Survey 1991-92

ghutti (a mixture of honey, butter, sugar and liquid), homemade liquids, bread, and boiled potatoes. Early supplementation of breast feeding was associated with urban, more educated, wealthier, women. Late initiation of supplementation was more

common among rural, less educated, poorer mothers.

Duration of breast feeding : At the time of the interview, 79.2% of mothers were still breast feeding their youngest child. Further analysis revealed that more rural, less educated, poor, mothers were breast feeding at the time of the interview. For those mothers who had stopped breast feeding, 12% reported that they breast fed for two months, 17.6% up to five months, 35.6% up to 12 months, and 29.2% beyond one year. Fig. 1 compares the duration of breast feeding for the youngest child for the 1987 National Nutrition Survey and the present PHES 91-92 Survey. As indicated, the duration of breast feeding has declined considerably between the two surveys, with 58% of mothers breast feeding between 6-11 months for the 1987 survey compared to less than 40% breast feeding for this duration in the PHES Survey.

Reasons for discontinuation of breast feeding: Among women who had stopped breast feeding their youngest child, 34.5% of women stated pregnancy as the reason for stopping. The second and third most common reasons were "milk dried up" and "child refused", for 19.1% and 12.1% of women respectively. Some less common reasons for stopping breast feeding were: the child reached weaning age, the mother became ill, or the child became ill.

Breast Feeding Patterns for the Older Child: A total of 288 mothers have two children over 2 years of age. These mothers were asked the same set of questions about breast feeding of the older child. A total of 81.6 percent of mothers reported ever breast feeding their older child compared to 95.4 percent for the youngest child. These results indicate a significant intergenerational increase in the proportion of mothers initiating breast feeding practices among their youngest child.

Morisky *et al.*: Breast Feeding Practices in Pakistan

Table 4: Types of Milk Given to Youngest Child by Demographic Characteristics, "Pakistan National Health Education Survey 1991-92"

	Breast Only n= 4,011	Breast + Bottle n= 1,172	Bottle Only n= 211	DK* n= 39	Valid N
PAKISTAN (Total Percent)	73.8%	21.6%	3.9%	0.7%	5,433
Province					
Punjab	69.8%	25.6%	4.3%	0.3%	2,406
Sindh	75.4%	19.7%	4.1%	0.8%	1,176
N.W.F.P.	81.4%	15.3%	2.2%	1.1%	812
Balochistan	80.9%	13.0%	4.2%	1.9%	640
AJK	66.7%	29.3%	3.5%	0.5%	399
Residence					
Rural	77.2%	19.3%	2.7%	0.8%	3,167
Urban	69.1%	24.7%	5.6%	0.6%	2,266
Age					
15-19	82.1%	12.8%	4.1%	1.0%	196
20-24	74.7%	20.0%	4.2%	1.0%	1,063
25-29	73.5%	21.3%	4.6%	0.6%	1,842
30-34	72.7%	23.5%	3.1%	0.8%	1,303
35-39	72.6%	23.8%	3.2%	0.4%	740
40-44	76.3%	21.2%	2.5%	0.0%	236
45-49	73.6%	17.0%	5.7%	3.8%	53
Education					
None	77.5%	19.0%	2.7%	0.8%	3,953
Primary	67.1%	27.2%	4.9%	0.9%	574
Middle	75.8%	17.4%	6.0%	0.7%	298
> = Secondary	55.3%	35.0%	9.4%	0.3%	608
Monthly Income					
RS < 1,000	78.2%	17.6%	3.1%	1.1%	1,727
RS:1,000-1,999	74.0%	21.8%	3.6%	0.7%	1,613
RS:2,000-3,499	71.5%	23.7%	4.3%	0.5%	1,018
RS:3,500-4,900	68.2%	26.3%	5.2%	0.3%	346
RS > 5,000	64.5%	28.3%	6.1%	1.0%	293
DK *	72.2%	23.4%	4.4%	0.0%	436

* DK : Do Not Know

Multivariate Analysis for Breast Feeding: Those variables which were found to significantly relate to exclusive breast feeding practices were entered into a multivariate analysis using the variable "feeding pattern" as the dependent variable. This was categorized as 1 = exclusive breast feeding and 0 = to all other responses. For categorical dependent variables, logistic regression analysis was used to predict the best model that fit the data. Model Chi Square and goodness of fit tests are used to evaluate the efficiency of the model. The parameters of the model are estimated using the maximum likelihood method. For each independent variable, the coefficient and its standard error are calculated. The Wald test and its significance are used to test if the coefficient of the independent variable is different from zero. For each independent variable, the odds ratio is calculated by obtaining the exponent for the coefficients of the independent variables. Table 6 presents the logistic regression model to predict the feeding pattern of the mother. It is apparent that the mother's area of residence, age, education, number of consultations for child health, having a radio, TV or reading the newspaper, age at which she began to breast feed, and age of the child are significant predictors of exclusive breast feeding. These seven variables significantly predict 76.8% of the feeding pattern of the mother. Mothers living in urban areas are 10% less likely to exclusively breast feed their youngest child. Lower levels of education are also significant predictors with mother's with primary education 89% less likely to exclusively breast feed and mothers with no education are 2.56 times less likely to exclusively breast feed. Finally mothers who have a radio, TV or read the newspaper are 8% less likely to exclusively breast feed their infant.

Discussion

Breast feeding is on the decline in the more developed areas of Pakistan. Urban, more educated, wealthier women are more likely

to stop breast feeding earlier, whereas rural, less educated and poor women tend to breast feed for longer. This pattern has been documented in other Middle Eastern countries including the United Arab Emirates and Saudi Arabia (Shahraban *et al.*, 1991; Serenius *et al.*, 1988). One reason for the rural-urban differential in Middle Eastern nations may be that urban, more educated, wealthier women are more subject to Western influence and have increased access to milk substitutes. Although the vast majority of women do breast feed their children for a time, they often cease breast feeding exclusively too early to give the child maximum benefit. Another problem is identifying the proportion of mothers who exclusively breast feed their infants. A prospective study conducted in Lahore, Pakistan found that only 9% of mothers were exclusively breast feeding, and that 23-73% of mothers were giving water in addition to milk (Ashraf *et al.*, 1993). This distinction is important because some studies have shown that unsupplemented breast feeding is much more strongly associated with decreased child mortality than supplemented breast feeding (Shahidulla, 1994). In any case, supplementing breast milk with formula and/or ghutti is unnecessary during the first 4-5 months, and it poses health risks to the child. Furthermore, early supplementation with breast feeding often leads to early stopping of breast feeding. It is difficult to explain the late initiation of breast feeding in Punjab, although cultural beliefs and attitudes appear to be a contributing factor. For example, many mothers in Punjab do not believe that colostrum is milk. They believe that milk only becomes available two to three days after birth. Other studies have shown that mothers believe the child should receive ghutti during the first day which consists of honey, butter mixed with sugar, glucose and other liquids.

The mothers also believe that ghutti has a dual purpose: it gives nutrition to the child until the mother's milk becomes available and it also cleans the intestines of the new born infant. commercial

Morisky *et al.*: Breast Feeding Practices in Pakistan

Table 5: Initiation of Breast Feeding by Demographic Characteristics, Pakistan National Health Education Survey 1991-92

	Immediately After Birth N= 1,844	2nd Day After Birth N= 1,581	3rd Day After Birth N= 1,570	4th Day After Birth N= 143	DK* N= 45	Valid N**
PAKISTAN (Total Percent)	35.6%	30.5%	30.3%	2.8%	0.9%	5,183
Province						
Punjab	19.7%	30.2%	45.4%	3.8%	1.0%	2,295
Sindh	63.6%	23.7%	10.5%	1.6%	0.5%	1,119
N.W.F.P.	35.0%	38.9%	24.2%	1.4%	0.5%	785
Balochistan	36.8%	35.8%	23.3%	3.2%	1.0%	601
AJK	48.3%	26.9%	21.1%	1.8%	1.8%	383
Residence						
Rural	32.6%	30.0%	33.9%	2.8%	0.7%	3,058
Urban	39.8%	31.3%	25.0%	2.7%	1.1%	2,125
Age						
15-19	36.0%	30.1%	27.4%	4.8%	1.6%	186
20-24	36.4%	30.5%	29.7%	2.2%	1.2%	1,007
25-29	35.4%	31.5%	29.3%	2.9%	0.9%	1,746
30-34	38.1%	28.4%	31.0%	2.4%	0.2%	1,253
35-39	32.4%	31.1%	32.4%	2.9%	1.1%	713
40-44	30.4%	33.0%	30.9%	4.3%	1.3%	230
45-49	29.2%	29.2%	39.6%	0.0%	2.1%	48
Education						
None	32.0%	31.5%	33.1%	2.6%	0.8%	3,815
Primary	39.2%	29.2%	27.4%	3.5%	0.7%	541
Middle	48.2%	27.7%	21.2%	1.4%	1.4%	278
> = Secondary	50.5%	26.4%	18.2%	3.6%	1.3%	549
Monthly Income						
RS < 1,000	28.4%	30.8%	37.6%	2.5%	0.7%	1,654
RS:1,000-1,999	33.9%	31.3%	31.4%	2.7%	0.6%	1,544
RS:2,000-3,499	38.3%	30.3%	26.3%	3.6%	1.4%	969
RS:3,500-4,900	45.9%	30.9%	19.0%	2.8%	1.5%	327
RS > 5,000	53.3%	26.5%	17.3%	1.5%	1.5%	272
DK **	44.1%	29.3%	23.7%	2.9%	0.0%	417

* DK : Do Not Know # Valid N : Only 5,183 respondents ever breast fed their youngest child

Table 6: Logistic Regression Analysis for Feeding Pattern for Children, Pakistan National Health Education Survey 1991-92

Variable	B	S.E.	Wald test	Significance	R	Exp(B)
Area of residency	!0.10	0.074	1.93	0.165	0.00	0.90
Mother's age	!0.02	0.006	13.63	0.0002	-0.05	0.98
Mother's education *						
- no education	0.94	0.112	71.15	0.000	0.11	2.56
- primary education	0.64	0.124	26.29	0.000	0.07	1.89
Number of consultants for child health						
	!0.17	0.037	21.10	0.000	!0.06	0.84
"Having radio, TV, newspaper"	!0.08	0.039	4.67	0.030	!0.02	0.92
Age to begin breast-feeding	!0.29	0.039	55.38	0.000	!0.10	0.75
Age of child (month)	!0.07	0.005	160.16	0.000	!0.17	0.93
Constant	2.96	0.245	146.07	0.000		

Model Chi Square = 367, Significance = .000, Prediction = 76.8%

* Mother's education : using the secondary education category as a reference category

ghutties are available in the market. Young mothers are informed about ghutti from older women, traditional birth attendants, midwives, mothers-in-law and in some cases, health care providers. The pressure to use ghutti prevents a mother who is often young and uneducated to initiate the early practice of breast feeding and use of colostrum.

In general, rural, poor, and less educated women are more likely to continue breast feeding for longer durations, but they are also more likely to initiate breast feeding later. Traditional practices and cultural beliefs appear to be an important factor in the decision to delay breast feeding. For example, mothers in some areas consider that colostrum is "stale" milk and that fresh milk will arrive on the third day. (Ashraf *et al.*, 1993). During this interim period, the child is usually given traditional and/or ceremonial foods such as honey, animal milk, rosewater, or cardamom water (Ashraf *et al.*, 1993). These practices much be considered dangerous since there is a high potential for contamination.

Conclusion: Pakistan is a society in transition; traditional practices are being abandoned in favor of a more 'westernized' lifestyle. Since there is evidence that socioeconomic factors influence early supplementation and bottle use, breast feeding is likely to decline even further as Pakistan continues to develop and urbanize. Now more than ever, women need to be better educated about breast feeding.

A targeted health education campaign should stress the many advantages of breast feeding. Specifically, messages should promote breast feeding as the optimal and most nutritious food for the child, an effective means of preventing disease, and an excellent contraceptive for child spacing. Mothers should be encouraged to continue breast feeding for as long as possible.

Since it is stated in the Holy Koran that mothers should breast feed their children for two years, there is potential to involve religious leaders in a breast feeding campaign.

A breast feeding campaign should also target specific behaviors,

Morisky *et al.*: Breast Feeding Practices in Pakistan

such as late onset of breast feeding. There is a particular need to communicate this message to residents of poor and rural areas. Messages should stress the protective benefits of colostrum and encourage mothers to begin breast feeding immediately after birth. Potentially hazardous practices, including pre lacteal feeding, should be discouraged.

Another issue that needs to be addressed is early supplementation of breast feeding. Mothers should be educated that the child does not require anything, in addition to breast milk during the first five months. It should be made clear that breast milk contains everything the child needs for proper nutrition and that even water is unnecessary.

Some mothers discontinue breast feeding because their milk production slows. Thus, it is important to teach mothers that they can increase their milk production by feeding the child on demand, as often as the child needs. It is widely accepted that breast feeding saves infants' lives. Six million infant deaths from diarrhea and acute respiratory infections alone are prevented annually through breast feeding and it is estimated that if more women were to breast-feed optimally (i.e., exclusively from birth through the first 4 to 6 months and for one year or longer), an additional two million infant deaths could be averted annually (Huffman *et al.*, 1991). It is essential that these beneficial effects of breast feeding be disseminated to all mothers and promote breast feeding for as long as possible as advocated in Islam.

Acknowledgement

The research presented in this article was conducted by Donald E. Morisky and Snehendri B. Kar, WHO short-term consultants to the Ministry of Health, Division of Health Education, Islamabad, Pakistan 1990-1991. The views and opinions of authors expressed herein do not necessarily state or reflect those of the World Health Organization

References

Ashraf, R.N., F. Jalil, Khan, S.Ri Zaman, S. Karlberg, J. Lindblad and L.A. Hanson, 1993. "Early child health in Lahore, Pakistan. V. Feeding Patterns." *Acta. Pediatr.*, 390 (suppl) :47-61.

- Boerman, J.T., S.O. Rutstein, E.A. Sommerfelt and G.T. Bicego, 1991. "Bottle use for infant feeding in developing countries: data from the demographic and health surveys." *J. Tropical Pediatr.*, 37:116-120.
- El-Zanaty, F.H., H.A. Sayed, H.H. Zaky and A.A. Way, 1992. *Egypt Demographic and Health Survey*. Cairo, Egypt: National Population Council.
- Huffman, S., 1991. "Breast: 'feeding' Saves Lives: An Estimate of the Impact of Breast feeding on Infant Mortality in Developing Countries." Center to Prevent Childhood Malnutrition, Washington, D.C.
- Kennedy, K.I., R. Rivera and A.S. McNeilly, 1989. "Consensus statement on the use of Breast feeding as a family planning method." *Contraception*, 39: 477.
- Khan M.A., 1983. "Breast feeding practices in Karachi City." Karachi, Pakistan: National Institute of Child Health, JPMC.
- Morisky, D.E., S.B. Kar and A.S. Chaudhry, 1995. *Knowledge, Attitudes and Practices Regarding Diarrheal Diseases in Pakistan*. Paper presented at the Annual Meeting of the American Public Health Association, San Diego, CA.
- National Nutrition Survey 1985-1988, Nutrition Division, National Institute of Health, Government of Pakistan.
- Serenius, F., A.R. Swailem, A.W. Edresse and Y. Hofvander, 1988. "Patterns of breast feeding and weaning in Saudi Arabia." *Acta paediatr. Scand.*, 346 (suppl):121-9.
- Shahidullah, M., 1994. "Breast feeding and child survival in Matlab, Bangladesh." *J. Biosocial Sci.*, 26:143-54.
- Shahraban, A.I., B. Abdulla, B. Bjorksten and Y. Hofvander, 1991. "Patterns of breast feeding and weaning in the united Arab Emirate." *J. Tropical Pediatr.*, 37:13-16.
- VerDerslice, J., B. Popkin and J. Briscoe, 1994. "Drinking-water quality, sanitation, and Breast feeding: their interactive effects on infant health. *Bulletin of the World Health Organization.*" 72, 4:589-601.