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BREAST-FEEDING IN MANILA, PHILIPPINES: PRELIMINARY
RESULTS FROM A LONGITUDINAL STUDY

Mayling Simpson-Hebert and Lorna P. Makil

Institute of Philippine Culture, Ateneo de Manila University
Quezon City, Philippines

Summary. Using longitudinal data collected over a 2-year period (1982-84) on 152 first and second parity mothers who delivered in a charity maternity hospital in Manila, Philippines, we examine the reasons for never breast-feeding and early termination of breast-feeding. Sociological and belief system factors are more important than physiological problems in successful breast-feeding. We also examine the effects of bottle-feeding on family income, health of infants and pregnancy spacing. Proper bottle-feeding is not affordable for most low-income families. Bottle-fed babies have a higher incidence of diarrhea. Mothers who switch to bottle-feeding in the first 6 months have a 20% higher conception rate than mothers who breast-feed 7 or more months.

Introduction

Breast-feeding is currently being promoted in the Philippines for its positive effects on birth spacing, its economic advantages for low-income families and for prevention of infant diarrhea. Artificial feeding of

infants has been practiced in the Philippines since at least the beginning of American occupation at the turn of this century (McLaughlin and Andrews, 1910) and has slowly grown in popularity, especially among the upper-income groups. Studies indicate that the greatest declines in the proportions breast-feeding occurred in the 1960's coincidental with strong infant formula promotion by milk companies in hospitals and among pediatric medical personnel and newly-delivered mothers (Bulatao-Jayne, 1965; Gabucan-Dulay, 1970). Presently, initiation of lactation at delivery is fairly high in rural areas, at around 90%-95% of all mothers, and more moderate among low-income, hospital-delivered urban residents, at around 76% of all mothers. At 12 months, about three-quarters of rural infants and about half of infants who were ever breast-fed are still being breast-fed (Barranda-Bautista and Cruz, 1979; Osteria, 1978; Popkin, 1978; Rivera and Marso, 1979; WHO, 1979; Zeitlin et al., 1978).

This paper reports on a longitudinal study of breast-feeding initiation, duration, beliefs and practices among low-income residents of Metro-Manila, Philippines. The data were gathered from 152 first and second parity mothers who delivered in the Dr. Jose Fabella Memorial Hospital, a government charity maternity hospital. There were two study groups. One group delivered in June 1982 (Group II) and the other delivered January through March 1983 (Group I), after our having followed them prenatally. Group I had no selection criteria other than parity;

Group II was selected on the basis of women's intentions to breast-feed.

Materials and Methods

Data were collected through initial hospital interviews and twice-monthly visits to respondents' homes for the first 6 months postpartum, and monthly visits thereafter for an additional 6 months for one-half of the sample (Group I) and an additional 12 months for the other half (Group II). A variety of research methods were used which included open-ended questionnaires, self-reporting forms and participant-observation with narrative reports. Information was gathered on socio-economic characteristics, obstetric history, contraceptive practices, postpartum menstruation, infant feeding beliefs and practices, infant illnesses, and family expenditures for the child. Primary research emphasis was to understand in some sociological detail infant feeding decisions of individual mothers and infant health outcomes.

For this study, women who mixed-fed their infants with breast milk substitutes were counted as breast-feeding, but each month every infant was classified as breast-fed, mixed-fed or bottle-fed. For certain analyses, breast-fed and mixed-fed infants were separated, in which case those not mixed-fed were called purely breast-fed. These terms refer to modes of milk feeding only. Most mothers also fed their infants citrus drinks, rice-water and rice porridge within the first six months.

Some Preliminary Results

Socio-demographic characteristics of the 152 women in the two study groups are summarized in Table 1. Because we selected low-parity women, they were also quite young; 91% were below age 30. They were a well-educated group; 59% attended high school and 22% received education beyond high school. Even among low-income groups, education is highly valued in the Philippines. About two-thirds lived in slum and squatter communities, and one-quarter were in common-law unions. The rate of infant mortality for those who had had previous live births was 45 per 1000, somewhat less than the national rate of 54 per 1000.

The duration of breast-feeding in these women's previous live births tended to be short; less than half breast-fed more than 5 months. Group II, as expected, had a better record of duration; these were the women selected on the basis of their intention to breast-feed the current baby.

Impediments to breast-feeding

One purpose of the study was to understand impediments to successful lactation in the first three months: sociological, attitudinal and physiological barriers. Findings are summarized in Tables 2 and 3. Women were interviewed prior to or just on the day of delivery about their intended feeding methods. Then they were followed up at home 2 weeks after delivery and every 2 weeks thereafter to determine what happened.

About 79% of Group I mothers were able to breast-feed at least 1 month, nearly the same rate found in other urban hospital samples (Anonymous, 1959; Osteria, 1978; Rivera and Marso, 1979; Valdecañas et al., 1981). Group II, more dedicated to the idea of breast-feeding, had a higher success rate of 89%. It is noteworthy that 11% of Group II stopped lactation within the first month despite their universally positive intentions to breast-feed their infants.

Reasons for never breast-feeding and terminating breast-feeding in the first 3 months are diverse and are summarized in Table 3. For both groups sociological reasons are most prevalent. More women in Group I planned to work after delivery and believed that working is incompatible with breast-feeding. In Filipino urban society, it is commonly believed that if a working mother breast-feeds, her infant will suck her "tiredness" and suffer vomiting, diarrhea or poor growth. Also, working mothers claim they do not want their babies to search for their breasts while they are away, making it difficult for baby and baby-sitter alike. More in Group I did not like breast-feeding or did not know how to do it. A second important reason for discontinuing breast-feeding is due to another belief in Metro-Manila: that illnesses are transferred through mother's milk. This cultural belief is present even among some medical professionals. Mothers commonly stop breast-feeding 1 week or more while they have a

cold, influenza or diarrhea, and in some cases the lack of sucking stimulus during that time results in her milk drying up. Others terminate breast-feeding because they observe their infants to be sick and they believe (or their pediatricians believe) their breast milk is the cause.

Maternal physiological reasons were less important. In Group II, three women who had caesarean deliveries with 7 to 11 days hospital confinement discovered that they had no milk upon discharge, probably because they had had no contact at all with their infants during that time. These women were also extremely poor and usually ate only rice and salt daily. Three women in Group I had inverted nipple problems that could not be overcome, but they had positive attitudes toward breast-feeding.

Problems with infants was the least important cause of lactation failure.

Effects of bottle-feeding

Another purpose of the study was to document precisely some of the effects of a decision to bottle-feed among low-income urban families. In this paper we examine three effects: economic, health and birth spacing.

Even though 94% of household heads of the families in our study groups earned less than P2,000 (\$143 US) per month, and the mean income was P1,000 (\$71 US) per month, 33% of Group I and 28% of Group II were

completely bottle-feeding their infants after three months (Table 2). We estimate that the decision to bottle-feed absorbed about 16.7% of the average family's monthly income. It would have gone higher, to 20.8%, if the infant formula had been fed properly.

The cost of bottle-feeding in Metro-Manila is summarized in Table 4. We gathered data on the amount of money families actually spent on breast milk substitutes, how that milk was diluted and how often it was fed to the infants. Two mothers fed their infants according to directions on the infant formula can. Based-on their buying experience, we estimated that it would cost P2,485 (\$178 US) to properly bottle-feed an infant for 1 year. Most, however, did not bottle-feed ideally. Either they over-diluted the formula, they used another kind of milk less desirable for infant feeding, they alternated milk feeding with the feeding of rice-water in a bottle or a combination of these. Based on actual data, the costs of these cheaper alternatives is presented. Few mothers were consistent in milk feeding. They frequently switched types of milk and varied dilutions or frequency of feedings to suit their incomes that varied weekly. The data presented in Table 4 come from more consistent mothers only.

The effect of bottle-feeding on infant health is presented in Table 5. Mothers recorded infant illnesses on self-reporting forms which were collected at each visit. Further probing was done on symptoms and severity

of the illness, consultations and medicines. The data in Table 5 combine severe and mild illnesses. Although breast-feeding is not known to give any protection against respiratory illness and fevers, we included them in this study. A particular infant might have had two or more illnesses in the same month, but if it was two bouts of the same illness, like diarrhea, it was counted as one. Also, fevers sometimes accompanied diarrhea and colds, and sometimes did not. For this study, fever with diarrhea or with cold was counted as two occurrences, even though they may have occurred as one illness. Also included in the fevers category were various kinds of viral infections such as roseola, rubella, measles and other fevers with rashes, which were quite common among study infants.

A clear and consistent pattern of the advantage of pure breast-feeding emerges from the illness data on diarrhea. In months 2 to 6, bottle-fed and mixed-fed babies had higher incidences of diarrhea than breast-fed babies. No clear differences emerge for respiratory illnesses or fevers. What is more striking is the high rates of infections from all illnesses that all babies experienced. Infants suffer mostly from cough and colds, secondly from fevers, and least of all from diarrheas. High rates of colds and fevers may be explained by the crowded living conditions of study families, located mostly in slum and squatter areas. Also, individual households on average are crowded with extended families and

boarders due to a general housing shortage in Metro-Manila. The low incidence of diarrhea may be explained by the fairly clean water supply of Metro-Manila; and while water and bottles are generally not boiled, mothers are aware that milk left unrefrigerated spoils quickly.

Finally, bottle-feeding has an adverse effect on birth spacing. Table 6 presents the pregnancy rates and rates of contraceptive use of 108 women whom we were able to follow for a complete 12 months. The effect of breast-feeding 3 to 6 months was the same as breast-feeding less than 3 months: more than half were pregnant within 12 months. Those who breast-fed more than 6 months had a 20% lower rate of conception. More striking is the low rate of contraceptive use among all women despite an active family planning program in the Philippines.

Discussion

Young urban Filipino women from the lower income group who deliver in hospitals are breast-feeding their infants much the way their counterparts did in the late 1950's and 1960's: about 76% are able to breast-feed for at least one month and about 32% of all infants are breast-fed at 1 year. A 1958 study (Anonymous, 1959) found that 31% of Manila infants were being breast-fed at 1 year and a 1968 study (Gabucan-Dulay, 1970) found 35%.

Of all the reasons women do not initiate breast-feeding or discontinue it during the first 3 months, sociological reasons far outweigh all others in importance. About 12% of women do not desire to breast-feed because they will work. Another 9% do not know how to breast-feed or do not like the idea of breast-feeding. Of those who desire to breast-feed, a further 4%-8% fail largely due to erroneous beliefs that illnesses pass through breast milk. Maternal physiological problems account for about 4% of failure in the first 3 months and problems with the infant, about 4%.

These results can be usefully applied to breast-feeding promotional campaigns that seek to raise initiation and continuation rates. Women can be told that their breast milk does not "spoil" while they are at work and will not harm their infants. They can also be told that illnesses do not pass through their milk, nor does human milk make babies sick.

Hospitals and doctors could also use some up-dated knowledge. Women with caesarean deliveries should not be separated from their infants for more than 3 days and mothers should be able to breast-feed their hospitalized infants. Further, doctors should not encourage mixed-feeding for non-working mothers because it can cause their own milk supplies to diminish.

Bottle-feeding is a costly option for low-income families. They soon discover how costly it is, and they practice over-dilution of the milk, alternate milk feeding with rice-water feeding and switch to cheaper brands. There are times infants receive no milk at all due to lack of money. Low-income residents could be made aware of the economic benefits of breast-feeding for a full year.

Bottle-feeding brings a higher risk of diarrheal disease. This risk may be even higher in rural areas where water quality is less reliable. Parents could be told that breast-feeding gives a measure of protection (though not complete) against diarrheal diseases for the first 6 months.

The results from conception rates among study respondents indicate that breast-feeding provides a measure of protection against pregnancy, if breast-feeding continues beyond 6 months. In the Philippines, where contraceptive use remains low and natural methods are preferred over artificial ones, breast-feeding for 1 year or more should be vigorously promoted for its contraceptive effect alone. Conception rates were fairly high among these women perhaps because a great many of them practiced mixed-feeding temporarily or continuously. It may be that those who purely breast-fed had lower conception rates. We also noted in our study groups widespread ignorance of family planning methods despite an active government family planning program.

Breast-feeding has economic, health and birth spacing benefits for low-income families. While breast-feeding rates appear to be stable in the Philippines, much could be done to improve initiation and duration rates in urban areas. Metro-Manila hospitals set the example of bottle-feeding through the practice of separating mothers from infants at birth and bottle-feeding infants in the nursery. At discharge nurses tell mothers the brand of infant formula fed to their babies during confinement, a tacit endorsement of bottle-feeding. This practice should be stopped and replaced by one whereby the nurse tells the mother to breast-feed for 2 years. Better yet, hospitals should establish rooming-in for all patients, surgical and non-surgical. (The Dr. Jose Fabella Memorial Hospital, operated by the Ministry of Health, is already converting its wards to rooming-in and 40% of our respondents were roomed-in with their infants.)

Finally, most urban homes have access to televisions, radios and comics. These media can be used to educate the public at large on the benefits of breast-feeding. Particular attention should be paid to dispelling erroneous beliefs that are impediments to breast-feeding.

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Table 1. Selected characteristics of the 152 women in the two study groups

Characteristics	%	No. of women	Characteristics	%	No. of women		
Age (years)			Previous live births				
<20	25.0	38	0	56.6	86		
20-24	45.4	69	1	43.4	66		
25-29	20.4	31	Total	100.0	152		
30-34	7.9	12	Previous infant deaths				
35+	1.3	2	0	95.5	63		
Total	100.0	152	1	4.5	3		
Education (years)			Total	100.0	66		
1-6	18.4	28	Duration of breastfeeding (months) in previous live birth				
7-10	59.2	90	Group I (N=78)		Group II (N=74)		
11-14	22.4	34	%	N	%	N	
Total	100.0	152	Never	30.0	9	19.4	7
Residence			<3	23.3	7	19.4	7
Urban	33.6	51	3-5	10.0	3	15.7	6
Urban slum	4.54	69	6-8	16.7	5	11.1	4
Urban squatter	16.4	25	9-11	0.0	0	5.6	2
Semi-rural	4.6	7	12+	20.0	6	27.8	10
Total	100.0	152	Total	100.0	30	100.0	36
Marital status			Marital status				
Legal marriage	71.7	109					
Common-law marriage	25.0	38					
No partner at all	3.3	5					
Total	100.0	152					

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Table 2. Breastfeeding practice of the 152 women in the two study groups for the current live birth

Practice	Group I (N=78)		Group II (N=74)	
	%	No. of women	%	No. of women
Breastfeeding practice in current live birth				
Stated intention to breast-feed at delivery	85.9	67	100.0	74
Never attempted breast-feeding	11.5	9	1.4	1
Attempted breast-feeding	88.5	69	98.6	73
Breast-fed 1 day to 1 week only	6.4	5	5.4	4
Breast-fed more than 1 week but less than 1 month only	2.6	2	4.1	3
Breast-fed at least 1 month	79.5	62	89.2	66
Percent continuing breast-feeding (months)				
3	60.8		72.5	
6	49.2		64.4	
9	40.6		61.5	
12	32.1		46.2	
15	*		40.4	
18	*		27.3	

*Group I was followed to 12 months only.

Table 3. Reasons for never breast-feeding and early termination of breast-feeding - 49 cases

Reasons for never and terminating breast-feeding	Group I (N=78)		Group II (N=74)		Total
	Never <1 month	1-3 months	Never <1 month	1-3 months	
<u>Belief that illness is transferred through mother's milk</u>					
Told by doctor not to breast-feed because her milk is contaminated	2		1		3
Mother terminated breast-feeding because she believes milk makes baby sick	2	1			3
Mother temporarily stopped breast-feeding during an illness and her milk dried up		1		2	3
Total	4	2	1	2	9
% of Group	(7.7)		(4.1)		
<u>Sociological</u>					
Believes breast-feeding incompatible with working	5	4	2	3	14
Told by husband to bottle-feed		2	1		3
Doesn't like to breast-feed	7	2		3	7
Ignorance of how to breast-feed	3				3
Breast milk dried up due to mixed-feeding		3			3
Elder sibling hospitalized		1			1
Total	10	12	3	6	31
% of Group	(28.2)		(12.2)		

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Table 3 (cont'd.)

Reasons for never and terminating breast-feeding	Group I (N=78)		Group II (N=74)		Total
	Never & <1 month	1-3 months	Never & <1 month	1-3 months	
<u>Maternal Physiological</u>					
One or more adverse con- ditions such as caesarean delivery with prolonged hospital confinement, great poverty and hunger, mother thin and sickly			3		3
Inverted nipple with great difficulty, pain or fever	2	1			3
Total	2	1	3		6
% of Group	(3.8)		(4.1)		
<u>Problems with Infant</u>					
Baby refused to breast-feed upon release from hospital hospital nursery			1		1
Infant death				1	1
Infant hospitalized and mother not allowed to breast-feed				1	1
Total			1	2	3
% of Group	(0.0)		(4.1)		

Table 4. Cost of bottle-feeding in Metro-Manila based on actual cost data from mothers who consistently fed a brand of milk

Average cost per time period (months)	Infant Formula				
	Theoretical cost (if bottle-feeding is properly done)	Actual cost (what women actually spent)	Full cream powdered	Evaporated	Sweetened condensed
	No. of P* cases	No. of P cases	No. of P cases	No. of P cases	No. of P cases
0-3	397 (1)	331 (5)	No data	No data	73 (2)
4-6	537 (2)	448 (5)	366 (1)	396 (1)	179 (2)
7-9	611 (2)	558 (5)	366 (5)	218 (2)	198 (5)
10-12	940 (1)	618 (5)	323 (5)	253 (5)	345 (5)
Total cost for 1 year	2,485	1,955	1,055	867	795

* P = Philippine peso; \$1.00 U.S. = 14.00 pesos.

Table 5. Occurrence of infant illness symptoms by mode of milk feeding for the first 6 months

Feeding Mode	Coughs & colds		Fever		Diarrhea		Total illness bouts		Total no. with illness data
	N	(%)	N	(%)	N	(%)	N	(%)	
<u>Month 1</u>									
Purely breast-fed	24	(32)	7	(9)	5	(7)	36	(49)	74
Mixed & bottle-fed	22	(32)	2	(3)	5	(7)	29	(42)	69
Total	46	(32)	9	(6)	10	(7)	65	(46)	142
<u>Month 2</u>									
Purely breast-fed	25	(45)	12	(21)	2	(4)	39	(70)	56
Mixed & bottle-fed	48	(52)	18	(20)	17	(18)	83	(90)	92
Total	73	(49)	30	(20)	19	(13)	122	(82)	148
<u>Month 3</u>									
Purely breast-fed	23	(50)	8	(17)	0	(0)	31	(67)	46
Mixed & bottle-fed	43	(46)	20	(21)	9	(10)	72	(77)	93
Total	66	(47)	28	(20)	9	(6)	103	(74)	139
<u>Month 4</u>									
Purely breast-fed	22	(50)	5	(11)	1	(2)	28	(64)	44
Mixed & bottle-fed	54	(59)	33	(36)	22	(24)	109	(120)	91
Total	76	(56)	38	(28)	23	(17)	137	(101)	135
<u>Month 5</u>									
Purely breast-fed	23	(51)	21	(47)	4	(9)	48	(107)	45
Mixed & bottle-fed	36	(42)	24	(28)	21	(25)	81	(95)	85
Total	59	(45)	45	(35)	25	(19)	129	(99)	130
<u>Month 6</u>									
Purely breast-fed	32	(65)	23	(47)	10	(20)	65	(133)	49
Mixed & bottle-fed	45	(61)	35	(47)	27	(36)	107	(145)	74
Total	77	(63)	58	(47)	37	(30)	172	(140)	123

Table 6. Rates of conception and reliable contraceptive use by duration of breast-feeding

Duration of breast-feeding	Total N at 12 months	Proportion conceived by 12 months post-partum		Proportion who began using a reliable contraceptive* by 6 months post-partum and continued at least 5 months	
		N	%	N	%
Never & <3 months	31	16	(52)	6	(19)
3-6 months	15	8	(53)	2	(13)
7-12 months	62	19	(31)	8	(13)
Total	108	43	(40%)	16	(15%)

*IUD, pills, abstinence, tubal ligation