

Feeding Practices of Preschool Children in Western Orissa I. Demographic Characters, Prelacteal Feed and Colostrum Rejection

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ABSTRACT The present paper reports the demographic characters of families, practices of giving prelacteal feed and colostrum rejection in newborns in different communities of western Orissa, which are parts of the comprehensive work undertaken by the author to study the various aspects of feeding practices. In general, Hindus dominated the population in all the communities (>94%), and 62% of rural families belonged to Scheduled Caste and Scheduled Tribe. The percentage of mothers belonging to the middle income group was 48 in industrial and urban communities whereas 77% of rural families belonged to the lower income group. The literacy percentage in rural mothers was 24 and it was the highest (93.5) in urban mothers. Around 10.5 % of mothers in the industrial area, 32% in urban and 4% in rural had part-time or petty jobs. About 17 % of mothers in the rural community belonged to 15-20 years age-group against less than 5% in the industrial and urban community. The practice of giving the newborns some feed after birth and before initiation of breast-feeding was found to be widespread (100 %) in all the communities. The percentage of mothers who discarded colostrum were 55, 50 and 86 in the industrial, urban and rural communities, respectively. The majority of mothers in favour of feeding the colostrum belonged to the educated class.

INTRODUCTION

Preschool child-feeding concerns about 25-30 million babies born annually in India and several millions mothers rearing them. It is a subject which concerns the very quality of our human resources. The health and nutritional status of millions of infants, and the 'start' which influences their subsequent growth and development throughout childhood, is determined by the pattern of feeding during their infancy. The subject has acquired added urgency and relevance in recent times in view of the fact that the average infant mortality rate (IMR) in the country, as a whole, today stands at over 120 per thousand and has remained more or less stationary around this level for nearly a decade (Gopujkar et al., 1984).

The process of development inevitably unleashes forces which may affect child-feeding practices. Urbanisation, industrialisation, the

bridging of the communication gap between the city and the village, increasing employment opportunities for women, and such other factors incidental to 'development' are bound to exert their impact on life styles, work pattern, family structures and value systems in our communities, not only in the urban areas but also in the vast country side as well; and these, in turn can influence infant and preschool children's feeding practices. Frequent monitoring of changing trends in feeding practices of infants and preschool children is, therefore, necessary in societies in a highly dynamic state of development.

It is not easy to generalise regarding child-feeding in developing countries in view of regional and local variations. It is a part of the culture of each region and country and relates to traditions, beliefs, taboos etc. Orissa is a small and predominantly rural state of India. It is one of the areas which came under British rule very late and hence, has not been

much influenced by Western beliefs and ideas. Although detailed reports on feeding practices of infants and preschoolers are available from various parts of India, the literature from Orissa is fragmentary and scanty (Small, 1984; Satpathy et al., 1984; Suvarna Devi and Behera, 1980). The present report is a part of a comprehensive project undertaken to study the demographic characteristics, practices of prelacteal feed, breast feeding, artificial feeding and the nutritional status through anthropometry of infants and preschool children in industrial, urban and rural communities of western Orissa.

STUDY AREA AND METHODOLOGY

The survey was conducted during 1988-89 in two industrial towns (Rourkela and Bargaraj nagar), three urban towns (Sambalpur, Burla, Bargarh) and many rural villages of western Orissa. The latest literature on feeding practice pattern of infants and pre-school children were reviewed and a schedule incorporating all the desired information for the collection of data was prepared and finalised after pretesting. A provisional schedule was prepared which included the general information on the family, socio-economic-environmental conditions and questions relating to the past and present feeding practices of infant or preschool child. The schedule was pretested prior to preparing the final schedule, the idea being to assess the suitability of the schedule for field use, to avoid ambiguity and unnecessary repetition and to evaluate the reaction of the subjects of the study during interview. After omitting the drawbacks of the provisional schedule, the final schedule was prepared for collection of information from mothers on their youngest child of below 60 months of age on various aspects of child-feeding. The details of the characteristics have been mentioned in the relevant tables in the text.

RESULTS AND DISCUSSION

I. Demographic Characteristics

The analysis of data is based on 190 industrial, 285 urban and 244 rural households. Information on religion, caste, family type, per capita income, literacy status of parents, parental occupation, place of delivery are presented in tables 1-4.

Table 1: Distribution of families according to religion and castes and type of family (% in parentheses)

Particulars	Industrial n=190	Urban n=285	Rural n=240
<i>Religion</i>			
Hindu	184 (97)	269 (94)	237 (99)
Christian	5	2	0
Muslim	0	10	1
Others	1	4	1
<i>Caste</i>			
Upper	96 (50.5)	178 (62.5)	19 (8)
Lower	86 (45)	81 (28.5)	95 (39.5)
SC/ST	8 (4.5)	26 (9)	126 (52.5)
<i>Type of Family</i>			
Joint	48 (25)	51 (18)	52 (21.5)
Nuclear	142 (75)	234 (82)	188 (78.5)

Religion and Caste: The distribution of families in different areas according to religion and caste is presented in table 1. In general Hindus dominated the population in industrial, urban and rural areas (>94 %) followed by Muslims, Christians and others. The upper and lower castes families were almost equally distributed in industrial area whereas in urban area there was a higher percentage of upper caste families (62 %) and in rural areas Scheduled Caste (SC) and Scheduled Tribe (ST) families dominated the population. The classification of families into upper and lower castes has been made by the investigator taking Brahmins and Kayastha in upper and Baisya and Sudras in the lower castes.

Economic Status: The families have been divided into five groups (Table 2). Subsequently, however, analysis has been made dividing them into three main groups with per capita income $\leq$ Rs.200/- p.m., Rs.201 - Rs.500/- p.m. and $>$ Rs.500/- p.m. In both industrial and urban areas, around 48 % of the total families belonged to the middle income group whereas in the rural area, 77% of the families belonged to the lower income group. Only 1.5 % of the families in the rural area belonged to the upper income group whereas the percentages in industrial and urban area were 26 and 42, respectively (Table 2).

Literacy Status: The percentage of literate mothers was minimum in the rural area (24 %) and maximum in the urban area (93.5 %). The percentage of highly educated parents (college and above) was also higher in urban area (Father -85 %, Mother - 65.5) (Table 2).

Employment Status: The employment status of fathers shows a higher percentage of part-time service in rural area whereas in the industrial and urban area, more than 80 % of the families were on permanent jobs either in Government or Public Sector or in private industries.

About 87 % industrial, 67.5 % urban and 64 % rural mothers were housewives (without jobs), 10.5 %, 32 % and 4 % of the industrial, urban and rural mothers, respectively were engaged in full-time jobs and 32 % of rural mothers were having part-time or petty jobs (Table 2).

Type of Family: About 75 % families in industrial, 82 % in urban and 78.5 % in rural area belonged to nuclear families (Table 2).

Sex-wise Distribution of Children: Table 3 indicates the sex-wise and age-wise distribution of children in different areas. Out of 180, 285 and 240 industrial, urban and rural children, 47, 47, 39, respectively belonged to the infant group.

Table 2: Family Information

Particulars	Industrial	Urban	Rural
No. of families (% in parentheses)			
<i>Per Capita Income (Rs.)</i>			
$\leq$ 100	8	5	72
101-200	42	22	113
201-500	90	138	52
501-1000	42	92	2
$>$ 1000	8	28	2
$\leq$ 200	50 (26)	27 (9.5)	185 (77)
201-500	90 (48)	138 (48.5)	52 (21.5)
$>$ 500	50 (26)	120 (42)	3 (1.5)
<i>Maternal Education</i>			
Illiterate	25	19	182
Elementary	12	2	18
Primary	66	24	25
High School	6	53	13
College	80	179	2
Technical and Professional	1	8	0
Illiterate	25 (13)	19 (6.5)	182 (76)
Upto High School	84 (44)	79 (28)	56 (23)
College and above	81 (43)	187 (65.5)	2 (1)
<i>Paternal Education</i>			
Illiterate	6	5	78
Elementary	2	0	22
Primary	48	10	76
High School	10	27	47
College	90	184	17
Technical and Professional	34	59	0
Illiterate	6 (3.5)	5 (2)	78 (32.5)
Upto High School	60 (31.5)	37 (13)	145 (60)
College and above	124 (65)	243 (85)	17 (7.5)
<i>Occupation of Father</i>			
Class I Service	54 (28.5)	90 (31.5)	0
Class II Service	53 (28)	26 (9)	23 (9.5)
Class III Service	44 (23)	124 (43.5)	71 (29.5)
Business and Agriculture	31 (16)	37 (13)	43 (18)
Part-time	8 (4.5)	8 (1)	103 (43)
<i>Occupation of Mother</i>			
Housewife	166 (87)	192 (67.5)	154 (64)
Full-time	20 (10.5)	92 (32)	10 (4)
Part-time	4 (2.5)	1 (0.5)	76 (32)

Age Distribution of Mothers and Place of Delivery. The percentage of young mothers (15-20 years) was around 17 % in rural area but in

the industrial and urban areas the percentage of young mothers was less than 5 (Table 4).

In industrial and urban areas 76 and 88.5% of deliveries were conducted either in hospitals or nursing homes whereas in rural area the figure was 39% only, with a maximum (61%) of home delivery. The majority of the deliveries in rural area was not attended to by any skilled attendant.

Table 5 presents the percentage of mothers who had delivered in hospital in relation to economic condition and parental education. Economic condition and parental education play a positive role on the number of hospital deliveries. Agarwal et al. (1986) have found positive influence of socio-economic condition on the rate of hospital deliveries in many parts of India.

II. Prelacteal Feed and Colostrum

During the first day after birth of a child, a prelacteal feed of "Janam Ghutti" is given to neonates with the belief that it helps to loosen meconium, prevents dehydration before establishment of lactation and acts as a tonic. This practice is widespread in Indian communities. (Trimula Rao, 1957; Anand and Rama Rao, 1962). Such feeds included sweetened water, honey, animal milk, breast-milk etc.

Table 3: Number of children (Sex-wise) in different age groups

Age group (months)	Industrial		Urban		Rural	
	M	F	M	F	M	F
≤ 6	8	5	5	14	6	8
7-12	18	16	10	18	15	10
13-18	10	20	12	11	11	17
19-24	9	10	12	12	10	14
25-30	13	18	18	13	9	10
31-36	10	8	20	17	18	16
37-42	4	5	17	16	8	18
43-48	8	4	13	15	16	10
49-54	6	7	17	10	9	12
55-60	4	6	22	13	12	11
Total	91	99	146	139	114	126

Table 4: Age status of mothers and their distribution according to place of delivery

<i>Particulars</i>	<i>Industrial</i>	<i>Urban</i>	<i>Rural</i>
	<i>No. of mothers (% in parentheses)</i>		
<i>Age Group (in years)</i>			
15-20	9 (4.5)	10 (3.5)	41 (17)
21-25	73 (38.5)	77 (27)	105 (44)
26-30	63 (33)	125 (44)	57 (23.5)
31-35	32 (17)	56 (6)	26 (4.5)
>35	13 (7)	17 (6)	11 (4.5)
<i>Place of Delivery</i>			
Hospital (including nursing home)	145 (76)	252 (88.5)	93 (39)
Home	45 (24)	33 (11.5)	147 (61)

Table 5: Per cent distribution of hospital delivery babies in relation to economic status and education of parents

Particulars	Industrial	Urban	Rural
<i>Per Capita Income (Rs.)</i>			
<200	58	74	36
201 - 500	79	87	40
>500	90	93	100
<i>Maternal Education</i>			
Illiterate	44	52.5	37
Upto High School	75	86	44.5
College and above	87.5	93	—
<i>Paternal Education</i>			
Illiterate	3	20	28
Upto High School	65	70	44
College and above	84	92.5	41

For the first few days, a new mother's breasts do not produce very much, and they do not produce ordinary milk at all. Instead, they produce a small quality of yellow fluid called colostrum, which contains less fat and sugar, but more protein than milk. It is a very special protective substance which the baby needs most. The protein in colostrum is mostly an immunoglobulin (Ig A) which protects the body from infection. In older children the Ig A is secreted by intestine but newborn babies can not make enough Ig A for themselves.

Yet they become exposed to dangerous microorganisms as soon as they are born. There is 20-40 times more Ig A in colostrum

than in mother's blood. When a baby drinks the colostrum, the Ig A lines his intestine and prevents many kinds of infection (Savage, 1983). Unfortunately colostrum feeding was not recommended by our ancient physicians (Singhal and Guru, 1973). Colostrum rejection is also a tradition in many Indian communities (Rao et al., 1972; Ojha, 1979; Agarwal et al., 1991).

Prelacteal Feed (First Feed) : The practice of giving the newborns some feed before initiation of breast-feeding was found to be wide spread (100%) in all the areas (Table 6). Sweetened water ranks first in order of preference followed by honey and plain water irrespective of socio-economic status and parental education (Table 7). The use of breast-milk as the first feed was less common.

Table 8 presents data on the use of various first feed methods adopted by mothers in the three areas. Use of cotton swab followed by spoon were the most prevalent first-feed methods. The practice of offering prelacteal feeds with a bottle (thus introducing the bottle to the infants before breast-feeding) was followed by 12% mothers in industrial, 4.5% in urban and 6% in rural area.

In a study on the social factors operating in feeding practices, Nalwa (1981) found honey, jaggery, sugar or lactose in water and animal milk as the most common prelacteal feed and the proportion of mothers giving honey increased directly with maternal literacy status and social status. The lower caste favoured sweetened water followed by honey and animal milk. Jaiswal et al. (1981) in their longitudinal studies observed that 87% of mothers introduced prelacteal feed and the incidence increased gradually from educated to illiterate mothers. Studies on slum and rural areas of Varanasi District indicated a prevalence of animal milk (Cow and Goat) as first feed (Katiyar et al., 1981). Mehta et al. (1972) observed that glucose water was given to 53.75% babies with the belief that it would prevent dehydration before establishment of lactation.

Table 6: Distribution of first-feed

Particulars	Industrial	Urban	Rural
	No. (% in parentheses)		
Diluted Milk	17 (9)	2 (0.5)	20 (8)
Boiled and cooled water	23 (12)	61 (21.5)	7 (3)
Plain water	7 (3.5)	20 (7)	30 (12.5)
Honey	42 (22)	63 (22)	45 (19)
Sweet water	61 (32)	132 (46)	124 (31.5)
Breast-milk	6 (3)	5 (1.5)	13 (5.5)
Lemon water	4 (2)	—	—
Does not remember	30 (15.5)	2 (0.5)	1 (0.5)

Use of "Janam ghutti" or pre-lacteal feeds was not seen in the village Jubbal of Simla (Bahl and Singh, 1982). Dattal et al. (1984) found that the centuries-old custom of giving inaugural feeds before regular breast-feeding was more religiously followed in urban area than rural area. Honey was the first choice of 71% urban and 49% rural mothers. Even "Ganga Jal" (water of river Ganges) in urban area and cow urine in rural areas were administered to purify the child. The usual prelacteal feeds in Bombay were sweetened water, animal milk and honey (Gopujkar et al., 1984) and 14% of all the infants in the entire study did not receive any prelacteal feed. Use of the bottle for first feed was 19% in Bombay and 5% in Calcutta. ICMR (1984) in a survey conducted in six major cities of India found that during the first 24 hours, the majority of newborns in all the regions received sweetened water and in some places honey was used. Mahadeven et al. (1985) found the sweetened water as the major feed among Muslims (94%), the caste Hindus (92%) followed by Harijans (76%). The practice of giving first feed was also widespread among rural women in and around Bangalore city (Shriff and Farsana, 1990).

To give any kind of artificial feed as prelacteal feed can be harmful and to give it by bottle can permanently interfere with breast-feeding (Savage, 1983). It is always better to feed a baby from the breast than in any other

Table 7: First-feed in relation to socio-economic and educational status (in percentage)

Particulars	First-Feed					
	Dm	Bw	Pw	Hn	Sw	Bm
Industrial Caste						
Upper	11	23	1.5	21	42	1.5
Lower	11	7	4.5	30.5	41.5	5.5
SC/ST	10	10	30	40	—	10
Per Capita Income (Rs.)						
≤200	12.5	10.5	4.5	34	34	4.5
200 - 500	7.5	17	3	24.5	43	3
>500	13.5	16	7	22.5	38.5	2.5
Maternal Education						
Illiterate	8	12	12	32	32	4
Upto High School	17	19	1.5	15.5	43.5	3
College and above	6	12	4.5	36	37	4.5
Paternal Education						
Illiterate	—	16.5	16.5	17	50	—
Upto High School	9.5	3.5	2	44	47	3.5
College and above	12.5	20.5	5	23.5	34.5	4
Urban Caste						
Upper	—	23.5	3	17.5	55	1
Lower	1	21.5	12.5	25.5	37	2.5
SC/ST	4	7.5	19.5	46	19.5	4
Per Capita Income (Rs.)						
≤200	4	11	40.5	18.5	22	4
201-500	1	15	6.5	21.5	55	1
>500	—	31.4	—	23.7	42.4	2.5
Maternal Education						
Illiterate	9	14.5	43	14.5	9	9
Upto High School	—	2.5	14	30	50	2.5
College and above	—	30	—	20	49.5	0.5
Paternal Education						
Illiterate	20	—	40	20	20	—
Upto High School	—	16	19	13.5	46	5.5
College and above	0.5	23	4.5	23.5	47	1.5
Rural Caste						
Upper	5.5	5.5	31	21	21	16
Lower	10.5	6.5	7.5	18	53.5	4.5
SC/ST	7	—	13.5	19	55	5.5
Per Capita Income (Rs)						
≤200	7	2.5	13.5	12.5	57.5	7
201-500	13.5	6	9.5	38.5	32.5	0
>500	—	—	—	67	33	—
Maternal Education						
Illiterate	7.5	1	13.5	21	50	7
Upto High school	9	10.5	10.5	10.5	58.5	5
College and above	50	—	—	50	—	—
Paternal Education						
Illiterate	11.5	2.5	11.5	13	54	7.5
Upto High school	7	1.5	14	21.5	50.5	5
College and above	6	12	6	23	23	—

Note: Dm - Diluted milk, Bw - Boiled and cooled water, Pw - Plain water, Hn - Honey, Sw - Sweetened water, Bm - Breast milk SC/ST - Scheduled Caste/Scheduled Tribe

way. But it is particularly important to avoid artificial feeds and feeding bottles in the first few days when lactation is being established. In the western part of Orissa, where the introduction of artificial feed as first feed is prevalent, immediate steps are to be taken by health visitors and other agencies to insure against the possible dangers of this practice.

Table 8: Per cent distribution of common first-feed methods

Methods	Industrial	Urban	Rural
Spoon	21.5	32	42.5
Cotton Swab	36	56	30
Earthen Diya	13.5	3.8	12.5
Bottle	12	4.5	6
Others/does not remember	16	3.5	9

Colostrum Rejection and Reasons: Table 9 presents distribution of mothers discarding colostrum in relation to socioeconomic status, maternal education, type of family and place of delivery. Around 55% of industrial, 50% of urban and 86% of rural mothers discarded colostrum. The practice of discarding colostrum was markedly reduced with educated mothers *i.e.* 43, 42 and 50% from college educated and above group against 84, 79 and 87% from illiterate group in industrial, urban and rural area, respectively. Similar trend was also observed in different income groups. The type of family was not associated with the practice of discarding colostrum in industrial or urban area. The figure was high among rural mothers of nuclear families and Scheduled Castes and Scheduled Tribes from all the areas. In urban and industrial area, a higher percentage of mothers from home delivery group discarded colostrum whereas in rural area, there was no difference in relation to place of delivery.

Different reasons attributed to colostrum rejection have been given in table 10. 68% of industrial mothers thought colostrum as not easily digestible against 31.5% urban and 35% rural mothers; a lower percentage of industrial (22) and a higher percentage of urban (45.5)

and rural (61) mothers thought it to be harmful to the baby. Most of the mothers who gave colostrum to their babies got the advice either from the doctor/nurse or from their mothers and mothers-in-law (Table 11).

Table 9: Per cent distribution of mothers discarding colostrum

Particulars	Industrial	Urban	Rural
<i>Type of Family</i>			
Joint	66.5	45	52
Nuclear	51	51	85
<i>Maternal Education</i>			
Illiterate	84	79	87
Upto High School	58	63	84
College and above	43	42	50
<i>Per Capita Income (Rs)</i>			
≤200	72	85	87.5
201-500	53	54	80.5
>500	42	37.5	100
<i>Caste</i>			
Upper	52	52	89
Lower	52	47	58
SC/ST	100	7	99
<i>Place of Delivery</i>			
Hospital	50	47	86
Home	73	73	86
Total	57	52	88

Table 10: Reasons for colostrum rejection (%)

Reasons	Industrial <i>n</i> = 105	Urban <i>n</i> = 143	Rural <i>n</i> = 207
Not easily digestible	68.5	31.5	35
Bad for baby	22	45.5	61
Baby could not suck	3.8	3.5	1.5
Not known	5.7	19.5	2.5

Table 11: Source of advice to give colostrum (%)

Source of Advice	Industrial	Urban	Rural
Mother/Mother-in-law	17.5	33	33.5
Doctor/Nurse	36	80	21
Self	23	3	—
Friends and Relatives	13	8.5	3

In the survey made by Dattal et al. (1984), only 2 out of 298 rural mothers and 1 out of 250 urban mothers thought that colostrum was injurious to the baby whereas Katiyar et al. (1981) and Narayanan et al. (1974) reported a 90% incidence of urban and rural mothers discarding colostrum. As per ICMR report (1984), a great majority of mothers in Poona and Gandhigram area manually extracted the colostrum and discarded it, while in Hyderabad and Coimbatore a majority fed colostrum to their infants. A small minority of mothers (6% in Hyderabad and 3% in Coimbatore) discarded colostrum with the belief that it was bad for child's health. In Delhi area, mothers belonging to Muslim and Christian communities avoided colostrum.

In their extensive survey Agarwal et al. (1986) found that 33-42% of mothers in urban areas discarded colostrum whereas the figures were 34-65% in rural area and in many urban slums. The figures were strikingly low among the tribals. There was a lot of variation in the number of mothers discarding colostrum in relation to education, socio-economic status but the practice was not affected by joint or nuclear family set-up. Interestingly a good percentage of mothers discarded colostrum as per the advice of the nursing staff (Agarwal et al., 1986).

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