

A COMMUNITY BASED STUDY OF FEEDING & WEANING PRACTICES IN UNDER FIVE CHILDREN IN SEMI URBAN COMMUNITY OF GUJARAT

Dinesh Bhanderi¹, Sushilkumar Choudhary²

¹Associate Professor, Dept. of Community Medicine, Pramukh Swami Medical College, Karamsad, Gujarat ²Ex Dean, Index Medical College & Research Centre, Indore

Correspondence:

Dr. Dinesh Bhanderi

Associate Professor, Dept. of Community Medicine,

Pramukh Swami Medical College, Karamsad- 388325 Anand, Gujarat

Email: bhanderi1963@gmail.com

Mobile: 09825350795

ABSTRACT

The practices of breast feeding & weaning prevailing in the community play a crucial role in deciding the health of a child. The present community based cross sectional study was conducted to study the attitudes, beliefs and behaviour regarding feeding and weaning practices; and the influence of various epidemiological factors on these practices in children of 0-5 years of age group. We selected 300 children of age group 0-5 years by using systematic sampling method from randomly selected three wards of Petlad town. The data collected, was subjected to simple proportions and χ^2 test. Our study suggests that the feeding & weaning practices in the under five children are strongly influenced by factors like mother's education, provision of antenatal care, place of delivery & prevailing sociocultural beliefs but not by socioeconomic status. In addition, these practices do affect the growth parameters of a child.

Key Words: Underfive children, breast feeding, top feeding, weaning, semi-urban area

INTRODUCTION

Every day, on an average more than 26000 children under the age of five die around the world¹. Malnutrition contributes to more than half of these deaths¹. Malnourished children often suffer the loss of precious mental capacities. They fall ill more often. If they survive, they may grow up with lasting mental or physical disabilities.

Mother is the most important person in a baby's life for both its physical as well as its psychosocial care and growth. The mother-infant relationship is the most vital formative relationship for the child. From the very first moments of life, a baby begins interacting with its mother. Thus, mother's health, her education, her beliefs & attitude regarding child rearing are important milestones on the road of child's health right from in utero period.

Also, faulty breast-feeding and weaning practices have their roots in socioeconomic and educational status of the parents, their cultural beliefs, number & spacing of siblings and the employment status of the mother. Improved breast feeding practices & reduction of artificial feeding could save an estimated 1.5 million children a year².

The delayed introduction of semisolid foods is a major cause of child malnutrition in South Asia. Most children do not receive semisolids until after 9 months of age, and many not until their second year of life³.

Practices like denial of colostrum "the first immunization of child", early and unnecessary introduction of top feeding in incorrect dilutions and in unhygienic pattern are also quite prevalent in many communities. These practices

are again influenced by socioeconomic, cultural & educational background of the child's parents.

MATERIAL & METHODS

The present study was carried out in Petlad town, a semiurban area of Anand district, Gujarat state, for a period of six months. A sample size was calculated using the formula $n = t^2 p q / d^2$ ($t=1.96$). On basis of a pilot study done on 50 under five children in the same town, p was taken as 0.26 & q as 0.74(1- p). Allowable error d was taken as 20% of p . Sample size thus yielded was 270. Considering 10% non-response, 30 was added to 270 to make the total sample size 300. Petlad town has population of 54,000 & consists of nine wards. To have equal representation of all socioeconomic groups, three wards, namely Nagarkua, Limbdisheri & Vyaswada, out of nine were selected randomly using lottery method so that a sample of 100 children can be drawn from each ward. With the help of intern doctors &

medical social workers, all the under five children were house-wise line listed. Their number in these wards turned out to be 754, 812 & 738. Considering sampling interval as seven, 100 children were selected from each ward by systematic sampling method to achieve a total sample of 300 under five children.

After obtaining written informed consent, mother of each child included in the study was subjected to personal interview in her own house followed by clinical examination & anthropometric measurements of the child. Housing condition, water supply & sanitary practices were looked for, to grade environmental condition of family as satisfactory or poor. The information thus collected was recorded on a pretested questionnaire. The three indices of nutritional status namely, weight for age, height for age, & weight for height were expressed in standard deviation units from the median for the international reference populations as per WHO/NCHS standards⁴.

Table 1: Nutritional status of underfive children by back ground characteristics

Variable	N	Weight for age % below - 2 SD No. (%)	Height for age % below - 2 SD No. (%)	Wt. for height % below -2 SD No. (%)
Receipt of Colostrum				
Yes	229	81(35.4)	102(44.5)	48(21.0)
No	71	50(70.4)	49(69.0)	21(29.6)
Total	300	131(43.7)	151(50.3)	69(23.0)
χ^2 (df)		27.069(1)	12.984(1)	2.272(1)
P Value		< 0.001	< 0.001	> 0.05
Exclusive breast feeding (> 4 months of age)				
Yes	223	99(44.4)	104(46.6)	52(23.3)
No	68	32(47.1)	44(64.7)	16(23.5)
Total	291	131(45.0)	148(50.9)	68(23.4)
χ^2 (df)		0.14(1)	6.807(1)	0.001(1)
P Value		> 0.05	<0.01	>0.05
Age at which weaning was started:				
4 - 6 Months	143	28(19.6)	52(36.4)	19(13.3)
7 - 9 Months	99	72(72.7)	66(66.7)	32(32.3)
10-12 Months	26	20(76.9)	18(69.2)	11(42.3)
> 12 Months	5	4(80.0)	4(80.0)	2(40.0)
Total	273	124(45.4)	133(48.7)	64(23.4)
χ^2 (df)		80.95(3)	26.51(3)	19.672(3)
P Value		<0.001	<0.001	<0.001

Children who are more than 2 SD below the reference median of weight for age index are considered underweight. Those who are more than 2SD below the reference median in terms of height for age are considered short for their age

or stunted. Similarly, those who are more than 2SD below the median of the reference population in terms of weight for height are considered wasted. The data collected was subjected to proportions, percentage & χ^2 test.

Table 2: Exclusive breast-feeding in relation to back ground characteristics

Variable	N	Exclusive breast-feeding	
		Yes No. (%)	No No. (%)
Mother's education*			
illiterate	48	39(81.3)	9(18.7)
just literate	31	26(83.9)	5(16.1)
primary	33	26(78.8)	7(21.2)
middle	39	27(69.2)	12(30.8)
higher secondary	69	58(84.1)	11(15.9)
graduate	69	46(66.7)	23(33.3)
post graduate	2	1(50.0)	1(50.0)
Total	291	223(76.6)	68(23.4)
Socio-economic status†:			
Class I	32	25(75.5)	7(24.5)
Class II	110	84(76.6)	26(23.4)
Class III	85	64(72.7)	21(27.3)
Class IV	62	49(77.8)	13(22.2)
Class V	2	1(50.0)	1(50.0)
Total	291	223(76.6)	68(23.4)
Antenatal care received‡:			
Yes	217	163(75.1)	54(24.9)
No	74	60(81.1)	14(18.9)
Total	291	223(76.6)	68(23.4)
Place of birth§ :			
Home	70	56(80.0)	14(20.0)
Hospital	221	167(75.6)	54(24.4)
Total	291	223(76.6)	68(23.4)
Mother's age at birth (years) :			
17-21	69	59(85.5)	10(16.1)
22-26	162	126(77.8)	36(37.9)
27-31	49	32(65.3)	17(11.5)
32-36	9	6(66.7)	3(2.1)
37-41	2	0(0.0)	2(0.5)
Total	291	223(76.6)	68(23.4)

* χ^2 (df):9.35(6); $p>0.05$, † χ^2 (df):0.99(4); $p>0.05$ ‡ χ^2 (df):1.10(1); $p>0.05$, § χ^2 (df):0.95(1); $p>0.05$ || χ^2 (df):11.26(4); $p<0.05$

RESULTS & DISCUSSION

Out of total 300 children examined, 40(13.3%) were under one year of age, 68(22.7%) between 1-2 years, 64(21.3%) between 2-3 years and 58(19.3%) between 4-5 years. 163 (54.3%) were males while 137(45.7%) were females.

The practices of breast feeding & weaning prevailing in the community play a crucial role in deciding the health of a child because of various reasons. This study gave us an ample opportunity to know about these practices

prevailing in the area. Our study pointed out that 71(23.7%) children born were put on breast feed within first hour of life that is the most ideal practice. In 134(44.7%) children, it was initiated within 1-6 hours & rest within 7-12 hours or more. A study by Khan M. E. in Gujarat revealed that 31.6% infants were breast fed within first 12 hours of life⁵. Similar study by Gopujkar et al showed that the practice of not putting the infant to breast within first 24 hours widely prevalent in cities like Kolkata(47.6%) & Chennai(23.8%) but less in Mumbai(3.4%)⁶. Findings in study done by Agarwal et al in low income Indian urban mothers were almost similar, where 5 to 10% mothers initiated breast feeding on 1st day while 15 - 30% mothers initiated breast feeding on 2nd day and 64 - 71 % on 3rd day⁷.

As regards colostrum feeding, we found that 229(76.3%) children were fed colostrum. Study by Agarwal et al⁷ and Bhardwaj et al⁸ showed lower rates on colostrum feeding (11.8% & 5% respectively). This suggests presence of greater awareness among women regarding colostrum.

As per WHO recommendations, a child should be breast-fed exclusively upto the age of six months. In our study, out of 291 children who were 4 months and above, 223(76.6%) children received exclusive breast-feeding. In spite of considering infants who received breast milk only up to the age of 3 months as exclusively breast fed, our figures are higher than the ones reported by Agarwal et al in their study in Indian urban mothers⁷. While 20% infants in Bombay, 13.4% in Calcutta & 8.5% in Madras were exclusively breast fed in a study by Gopujkar et al⁶. This difference can be attributed to higher awareness created by means of health education and counseling of mothers provided in the hospitals where the children were delivered. It is a common belief even in literate mothers of higher socio-economic status that only mother's milk is not sufficient for young infants. This, along with lack of knowledge regarding correct feeding practices, may be the reason why 68(23.4%) children were not exclusively breast-fed in our study.

Top feeding was initiated in 70(23.3%) children within first 1-4 months of their life whereas 230(76.7%) children were not given any top feeding. In a similar study conducted by Kumar et al, in 33% of urban poor children, top feeding was introduced within first three months of life⁹. This variation in the rate of top feeding between

our study & Kumar's study may be due to study populations⁹.
 difference in the socioeconomic status of the two

Table 3: Time of initiation of breast feeding in relation to back ground characteristics

Variables	N	Time of initiation of breast feeding (hours after birth)			
		< 1hrs No. (%)	1-6 hrs No.(%)	6-12 hrs No.(%)	>12 hrs No.(%)
Mother's education* :					
Illiterate	49	4(8.2)	24(48.0)	6(12.2)	15(30.7)
just literate	32	5(15.6)	18(56.2)	4(12.5)	5(15.6)
Primary	34	8(23.5)	13(38.2)	2(5.8)	11(32.3)
Middle	41	15(36.5)	14(34.0)	4(9.7)	8(19.5)
higher secondary	71	17(23.9)	27(38.0)	19(26.7)	8(11.2)
Graduate	71	21(29.5)	37(52.1)	5(7.0)	8(11.2)
post graduate	2	1(50.0)	1(50.0)	0(0.0)	0(0.0)
Total	300	71(23.7)	133(44.3)	40(13.3)	55(18.3)
Socio-economic status†:					
Class I	33	11(33.3)	12(36.3)	4(12.1)	6(18.1)
Class II	114	24(21.0)	55(48.2)	14(12.2)	21(18.4)
Class III	88	22(25.0)	41(46.5)	11(12.5)	14(15.9)
Class IV	63	14(22.2)	24(38.0)	11(17.4)	14(22.2)
Class V	2	0(0.0)	2(100.0)	0(0.0)	0(0.0)
Total	300	71(23.7)	133(44.3)	40(13.3)	55(18.3)
Antenatal care received‡:					
Yes	222	58(26.1)	97(43.6)	34(15.3)	33(14.8)
No	78	13(16.6)	37(47.4)	6(7.6)	22(28.2)
Total	300	71(23.7)	133(44.3)	40(13.3)	55(18.3)
Place of birth§ :					
Home	73	6(8.2)	17(23.3)	17(23.3)	33(45.2)
Hospital	227	101(44.5)	54(23.8)	38(16.7)	34(15.0)
Total	300	71(23.7)	133(44.3)	40(13.3)	55(18.3)
Mother's age at birth (years) :					
17-21	71	14(19.7)	36(50.7)	10(14.0)	11(15.4)
22-26	166	38(22.8)	72(43.3)	24(14.4)	32(19.2)
27-31	51	16(31.3)	18(35.2)	5(9.8)	12(23.5)
32-36	10	3(30.0)	6(60.0)	1(10.0)	0(0.0)
37-41	02	0(0.0)	2(100.0)	0(0.0)	0(0.0)
Total	300	71(23.7)	133(44.3)	40(13.3)	55(18.3)
* χ^2 (df): 40.381(18); p<0.01		† χ^2 (df): 7.534(12); p>0.05		‡ χ^2 (df): 10.482(3); p<0.05	
§ χ^2 (df): 44.21(3); p<0.001		χ^2 (df): 10.33(12); p>0.05			

Cow's milk was the most frequent type of milk used for top feeding and was given to 44(62.9%) children out of whom 2/3rd received it in undiluted form. 242(80.7%) children were put on weaning foods between the age of 4 months; the most common weaning food being rice & daal.

As discussed earlier, the feeding practices contribute sizably to the health of a child. So, we tried to get sight of the mother's perceptions regarding these practices because their blemished concepts related to child feeding will

result in poor nutrition of the child. In our study, out of 269 mothers, 207(76.9%) knew about colostrum. But only 99 (47.8%) had the cognizance regarding the anti-infective property of colostrum. On interrogation, it was revealed that the sources of this information were the doctors, ANMs & trained birth attendants who conducted their delivery. In a study conducted by Grover et al in Delhi, 52% of mothers considered colostrum harmful to baby¹⁰. 134(49.8%) mothers were of the opinion that the

child should be exclusively breast fed for more than 6 months. While, 67(24.9%) mothers said that exclusive breast-feeding should be given upto four months of life. Only 121(44.9%) mothers knew the ideal age of weaning.

Table 4: Receipt of colostrum in relation to background characteristics

Variables	N	Colostrum received	
		Yes No.(%)	No No.(%)
Mother's education*			
illiterate	49	17(34.6)	32(65.3)
just literate	32	23(71.8)	9(28.1)
primary	34	22(64.7)	12(35.2)
middle	41	35(85.4)	6(14.6)
higher	71	60(84.5)	11(15.4)
secondary			
graduate	71	70(98.5)	1(1.4)
post graduate	2	2(100.0)	0(0.0)
Total	300	229(76.3)	71(23.7)
Socio-economic status†			
Class I	33	26(78.7)	7(21.2)
Class II	114	93(81.5)	21(18.4)
Class III	88	65(73.8)	23(26.1)
Class IV	63	43(68.2)	20(31.7)
Class V	2	2(100.0)	0(0.0)
Total	300	229(76.3)	71(23.7)
Antenatal care received‡			
Yes	222	187(84.2)	35(15.7)
No	78	42(53.8)	36(46.1)
Total	300	229(76.3)	71(23.7)
Place of birth§			
Home	73	41(56.1)	32(43.8)
Hospital	227	188(82.8)	39(17.1)
Total	300	229(76.3)	71(23.7)
Mother's age at birth (years)¶			
17-21	71	49(69.0)	22(30.9)
22-26	166	130(78.3)	36(21.6)
27-31	51	39(76.4)	12(23.5)
32-36	10	9(90.0)	1(10.0)
37-41	2	2(100.0)	0(0.0)
Total	300	229(76.3)	71(23.7)

* χ^2 (df): 74.49(6); $p < 0.001$, † χ^2 (df):5.04(4); $p > 0.05$
‡ χ^2 (df): 29.50(1); $p < 0.001$, § χ^2 (df):21.7(1); $p < 0.001$

¶ χ^2 (df): 4.120(4); $p > 0.05$

The upbringing of child including the nutrition is surrounded by a wide range of customs and beliefs prevailing in the community. So many taboos as regards child feeding are deeply rooted in our society. Certain food articles are considered "hot", some "cold" and some

"harmful" to the child. When asked about their concepts regarding such food-related taboos, mothers of 72 (24.0%) children considered jaggery as "hot" for the child. Some considered spicy food, papaya, eggs, mangoes etc. "hot" for the child, thus, precluding it from getting these nutritious kinds. Regarding "cold" foods, banana was thought to be "cold" for child by mothers of 103 (34.3%) children. While some mothers considered curd/butter milk, ice-creams & fruits like guava, "cold" for the child. Such taboos deprive the child of essential nutrients contained in such foods. Spicy & fried foods, eggs, tea/coffee, non-vegetarian foods were considered by some as "harmful" to the child.

Exclusive breast-feeding was found to be associated with mother's age at birth but not with parents' education, socioeconomic status or antenatal care received by mothers. The reason may be the prevailing socio-cultural practices that are followed by the families irrespective of educational & socioeconomic status.

Positive association of mother's education & antenatal care received by mothers with time of initiation of breast feeding suggests that proper message passed by health care workers to the mothers during antenatal visits can help in early initiation of breast feeding. Similarly, mothers will be more willing to feed colostrum to their babies when they are counseled properly during antenatal checkups & after delivery as shown by association of colostrum feeding with mother's education, antenatal care received & place of birth.

Timely weaning plays a important role in sound growth & development of a child. In our study, educated mothers were more receptive to the message of proper weaning passed to them during antenatal visits as suggested by association of time of initiation of weaning with mother's education & antenatal care received. Thus antenatal care turned out to be most significant factor in child's health as far as feeding & weaning practices are concerned.

CONCLUSION

Mother is principal fostering figure for the child. Her perceptions regarding feeding practices directly influence the health of the child. False beliefs & myths attached to child's feeding

deeply rooted in all strata of community need to be replaced by sound & scientific messages. Health care providers at all levels can play major role in doing this so as to lay a strong foundation of physical, mental & social health in

the first five precious years of child's life. Choices made & actions taken on behalf of children during this critical period affect not only how a child develops but also how a country progresses.

Table 5: Time of initiation of weaning in relation to back ground characteristics

Variables	N	Time of initiation of weaning (months after birth)					
		Not started No.(%)	1 - 4 No.(%)	5 - 8 No.(%)	9 - 12 No.(%)	13 - 16 No.(%)	17 - 20 No.(%)
Mother's education* :							
illiterate	49	3(6.1)	0(0.0)	29(59.1)	14(28.5)	0(0.0)	3(6.1)
just literate	32	2(6.2)	2(6.2)	18(56.2)	10(31.2)	0(0.0)	0(0.0)
primary	34	3(8.8)	2(5.8)	21(61.7)	6(17.6)	1(2.9)	1(2.9)
middle	41	3(7.3)	3(7.3)	28(68.2)	7(17.0)	0(0.0)	0(0.0)
higher secondary	71	5(7.0)	3(4.2)	58(81.6)	5(7.0)	0(0.0)	0(0.0)
graduate	71	7(9.8)	4(5.6)	59(83.0)	1(1.4)	0(0.0)	0(0.0)
post graduate	2	0(0.0)	0(0.0)	2(100.0)	0(0.0)	0(0.0)	0(0.0)
Total	300	23(7.7)	14(4.7)	215(71.7)	43(14.3)	1(0.3)	4(1.3)
Socio-economic status†:							
Class I	33	3(9.0)	1(3.0)	20(60.6)	9(27.2)	0(0.0)	0(0.0)
Class II	114	13(11.4)	5(4.3)	82(71.9)	13(11.4)	0(0.0)	1(0.8)
Class III	88	5(5.6)	2(2.2)	69(78.4)	10(11.3)	0(0.0)	2(2.2)
Class IV	63	2(3.1)	6(9.5)	42(66.6)	11(17.4)	1(1.5)	1(1.5)
Class V	2	0(0.0)	0(0.0)	2(100.0)	0(0.0)	0(0.0)	0(0.0)
Total	300	23(7.7)	14(4.7)	215(71.7)	43(14.3)	1(0.3)	4(1.3)
Antenatal care received‡:							
Yes	222	19(8.5)	13(5.8)	170(76.5)	19(8.5)	0(0.0)	1(0.4)
No	78	4(5.1)	1(1.2)	45(57.6)	24(30.7)	1(1.2)	3(3.8)
Total	300	23(7.7)	14(4.7)	215(71.7)	43(14.3)	1(0.3)	4(1.3)
Place of birth§:							
Home	73	6(8.2)	2(2.7)	48(65.7)	15(20.5)	0(0.0)	2(2.7)
Hospital	227	17(7.4)	12(5.2)	167(73.5)	28(12.3)	1(0.4)	2(0.8)
Total	300	23(7.7)	14(4.7)	215(71.7)	43(14.3)	1(0.3)	4(1.3)
Mother's age at birth (years) :							
17-21	71	6(8.4)	3(4.2)	48(67.6)	13(18.3)	0(0.0)	1(1.4)
22-26	166	14(8.4)	8(4.8)	119(71.6)	21(12.6)	1(0.6)	3(1.8)
27-31	51	2(3.9)	3(5.8)	39(76.4)	7(13.7)	0(0.0)	0(0.0)
32-36	10	1(10.0)	0(0.0)	8(80.0)	1(10.0)	0(0.0)	0(0.0)
37-41	2	0(0.0)	0(0.0)	1(50.0)	1(50.0)	0(0.0)	0(0.0)
Total	300	23(7.7)	14(4.7)	215(71.7)	43(14.3)	1(0.3)	4(1.3)

* χ^2 (df): 54.351(30); p < 0.01

§ χ^2 (df): 5.269(5); p > 0.05

† χ^2 (df): 21.376(20); p > 0.05

|| χ^2 (df): 7.617(20); p > 0.05

‡ χ^2 (df): 34.049(5); p < 0.001

ACKNOWLEDGEMENT:

We acknowledge the service provided by the intern doctors and medical social workers for this study.

REFERENCES:

1. The state of the world's children, Child Survival, 2008. UNICEF: 3, United Nations Plaza, New York 10017, USA.
2. "Our promise to the world's children" The state of the world's children, Early Childhood, 2001. UNICEF: 3, United Nations Plaza, New York 10017, USA.
3. Malnutrition in South Asia, A Regional Profile, Nov. 1997. UNICEF- Regional Office for South Asia, 73 Lodi Estate, New Delhi 110 003, India.

4. A growth chart for international use in maternal and child health care: Guidelines for Primary Health Care Personnel. WHO, Geneva, 1978
5. Khan M.E. Breast-feeding and weaning practices in India, Asia Pacific Population Journal. 1990; 5 (1): 71-88.
6. Gopujkar PV, Chaudhari SN, Ramaswami MA, Gore MS, Goplan C. Infant Feeding Practices with special reference to the use of Commercial Infant Foods, Nutrition Foundation of India, Scientific Report No.4. New Delhi: Ratna Offset 1984: p.115.
7. Agarwal M, Udipi SA. The impact of nutrition education on child feeding practices among low-income urban Indian mothers. Food and Nutrition bulletin, The United Nations University Press, 1989, 11(1). Available at: <http://archive.unu.edu/unupress/food/8F111e/8F111E00.htm#Contents>. Accessed August 3rd, 2011.
8. Bharadwaj, N., Badrul H., Zaheer. Breast-feeding and Weaning Practices: A Rural Study, Journal of Family Welfare. 1991; 38(1): 28-39.
9. Kumar S, Nath LM, Reddaiah VP. Supplementary feeding pattern in children living in a resettlement colony. Indian Pediatrics. 1992; 29(2): 219-22.
10. Grover VL, Chhabra P, Aggarwal OP. Knowledge, Attitude and Practice of breast feeding in a rural area of East Delhi. Health and Population-Perspectives and Issues. 1997; 20(2): 49-56.