

Complementary feeding practices among mothers of Waghodia Taluka of Vadodara: a knowledge, attitude, and practice study

Bhadra Y Trivedi¹, Shailee N Vyas², Bhavin S Dave², Khyati A Desai²

¹Department of Pediatrics, Smt. B.K. Shah Medical Institute & Research Center and Dhiraj General Hospital, Piparia, Vadodara, Gujarat, India.

²Department of Community Medicine, Government Medical College, Surat, Gujarat, India.
Correspondence to: Shailee N Vyas, E-mail: shaileenvyas@gmail.com

Received October 13, 2014. Accepted January 11, 2015

Abstract

Background: Well-being of child is directly related to the nutritional status of the baby. Malnutrition rate increases between 6 and 18 months—the period of complementary feeding. Appropriate complementary feeding promotes growth and prevents stunting among children aged between 6 and 24 months.

Objective: To document the knowledge, attitude, and practices pertaining to complementary feeding among the mothers of Waghodia Taluka of Vadodara, Gujarat, India.

Materials and Methods: This cross-sectional study was conducted among the conveniently enrolled 250 mothers of Waghodiya Taluka of Vadodara having at least one child less than 2 years of age. Data were entered and analyzed using Excel 2007 and Epi Info 7 software.

Results: Cow's milk was most common (44.4%) introductory food item. Around 58% mothers fed their children less than five times a day. Around 75% mothers fed their children by themselves; 17% were unaware about measures for maintaining hygiene. Most common illnesses associated with poor feeding as described by mothers were diarrhea (30%) and vomiting (22%). Literate mothers were observed to feed their children 2.4 times more if they had developed diarrhea ($\chi^2 = 9.2986$, $df = 1$, $p < 0.01$; OR = 2.4209; 1.3610–4.3063) and 3 times more during the episode of fever ($\chi^2 = 6.8517$, $df = 1$, $p < 0.01$; OR = 3.3962; 1.3002–8.8713).

Conclusion: Improper feeding practices were associated with education status of mothers. Knowledge about hygiene practices and illnesses related to poor feeding was also found less and both required more attention.

KEY WORDS: Complimentary feeding, maternal education


Introduction

Well-being of child is directly related to the nutritional status of the baby. Malnutrition not only weakens the child but also increases the risk of child mortality. Malnutrition rate increases between 6 and 18 months, the period of

complementary feeding.^[1] Breast-feeding and other dietary practices adapted by mother reflect the nutritional status of the child. Breast-fed infants and children grow normally during the first 6 months of their life and show slow growth during the transitional period of weaning because they do not get enough nutritious foods. Rate of malnutrition usually peaks at this time with consequences that persist throughout life. Stunting is seldom reversed in later childhood and adolescence. Appropriate complementary feeding promotes growth and prevents stunting among children between 6 and 24 months of age.

Aim and Objectives

This study aimed to document the knowledge, attitude, and practices pertaining to complementary feeding among the mothers of Waghodia Taluka of Vadodara, Gujarat, India.

Access this article online	
Website: http://www.ijmsph.com	Quick Response Code: 
DOI: 10.5455/ijmsph.2015.13102014133	

International Journal of Medical Science and Public Health Online 2015. © 2015 Shailee N Vyas. This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), allowing third parties to copy and redistribute the material in any medium or format and to remix, transform, and build upon the material for any purpose, even commercially, provided the original work is properly cited and states its license.

Materials and Methods

It was a cross-sectional study conducted among 250 study participants selected from four sites: (1) Dhiraj Hospital (150 women), (2) Waghodia primary health center (50 participants), (3) Gugliapura anganwadi (25 participants), and (4) Ishwarpura anganwadi (25 participants).

Duration of the study was 6 months (March 1, 2010 to August 31, 2010). All mothers admitted in obstetrics ward and accompanying children to the pediatric ward of Dhiraj Hospital during March 1, 2010 to August 31, 2010; women visiting Waghodia primary health center; those residing within an area covered by Gugliapura and Ishwarpura anganwadis; and mothers having at least one child less than 2 years of age and who were willing to participate in the study were included. Total 250 participants were selected conveniently.

At the time of data collection, mothers were explained about the study and objectives of the same. They were given informed consent forms prepared in Hindi, English, and Gujarati. If mothers agreed to participate in the study, they would be required to sign informed consent form and for illiterate women thumb impression. During the study, mothers were asked pretested semi-structured questions assessing their knowledge about infant feeding practices as well as source of information of their knowledge.

Data were entered using MS Excel and analyzed using Epi Info software, version 3.5.1.

Results

To assess the child feeding practices, surveyed mothers were asked about complimentary food and related practices, such as the requirement to start complimentary feeding and which food items were suitable or unsuitable for their child.

Mean age of study participants was 28.99 ± 4.01 years. More than half of the participants were enrolled from Dhiraj Hospital, Waghodia, Vadodara, Gujarat (60%). Most of the women were Hindu (85.2%). A total of 19.6% women were illiterate and 30% were just literate [Table 1].

When asked about the reasons for introducing complimentary feeding, the most common answers were inadequate breast milk secretion (91; 36.4%) followed by poor growth of child (85; 34%) [Table 2].

Table 3 shows predominance of cow's milk as an introductory food item to complementary food. This was followed by rice-based preparations (e.g., khichdi) for 52 (20.8%) mothers.

Three most frequent answers when inquired about maintaining hygiene were clean vegetables, clean kitchen, and clean hands. The most frequent answer being clean vegetables (82; 32.8%). A total of 16.4% did not know any measures about maintaining hygiene [Table 4].

All the mothers were asked about the complications associated with poor feeding habits. Most common answers received were diarrhea (74; 30%) and vomiting (56; 22%). Other common answers were frequent illnesses and poor growth [Graph 1].

Table 1: Sociodemographic profile of the participants

Distribution according to age	Less than 20	3 (1.20%)
	20–25	41(16.40%)
• Mean age = 28.99 ± 4.01	25–30	119 (47.60%)
• Median = 29	30–35	71(28.40%)
	More than 35	16 (6.40%)
Distribution according to site of enrollment (N = 250)	Dhiraj Hospital	150 (60%)
	Waghodia PHC	50 (20%)
	Gugliapura anganwadi	25 (10%)
	Ishwarpura anganwadi	25 (10%)
Distribution according to education (N = 250)	Illiterate	49 (19.60%)
	Just literate	75 (30.00%)
	Primary	50 (20.00%)
	Secondary	31 (12.40%)
	Higher secondary	29 (11.60%)
	Graduate	15 (6.00%)
	Postgraduate	1 (0.40%)
Distribution according to religion (N = 250)	Hindu	213 (85.2%)
	Muslim	37 (14.8%)

PHC, primary health center.

Table 2: Reasons for introducing complimentary feeding (N = 250)

No.	Answer	Frequency	Percent
1	Child cries excessively	18	7.2
2	Inadequate breast milk secretion	91	36.4
3	Child demands more	31	12.4
4	Poor growth of child	85	34
5	Miscellaneous	25	10

Table 3: Preferred food to start complimentary feeding

No.	Food items	Frequency	Percent
1	Biscuits	7	2.8
2	Cow's milk	116	44.4
3	Daal	24	9.6
5	Fruits/juices	16	5.6
6	Vegetables	17	6.8
7	Khichdi/rice-based preparations	52	20.8
8	Roti	9	3.2
9	Do not know	9	3.2
	Total	250	100

Table 4: Knowledge about measures to maintain hygiene during food preparation

No.	Hygiene maintenance	Frequency	Percent
1	Boiled water	6	2.4
2	Clean hands	51	20.4
3	Clean kitchen	68	27.2
4	Clean vegetables	82	32.8
5	Clean water	2	0.8
6	Do not know	41	16.4
	Total	250	100

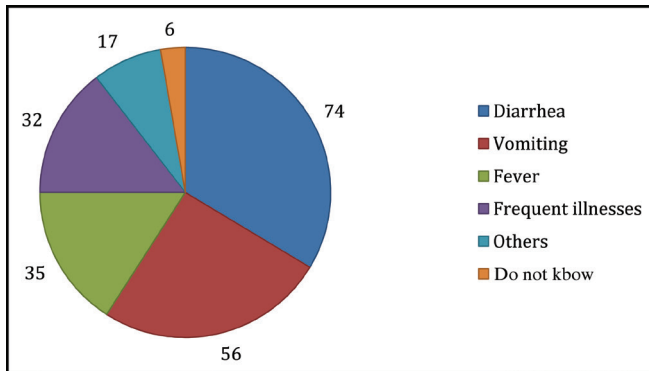
Mother's knowledge about correct feeding practice is important. But at times it is not only the mothers who feed their children. Grandparents, relatives, and others also contribute to feeding. Thus, it is equally important to know who feeds the child and how many times. When mothers were asked who fed their children, majority (75%) of the

mothers said they fed their children themselves, whereas 32 (15.6%) mothers replied that the children were fed by their grandparents [Graph 2].

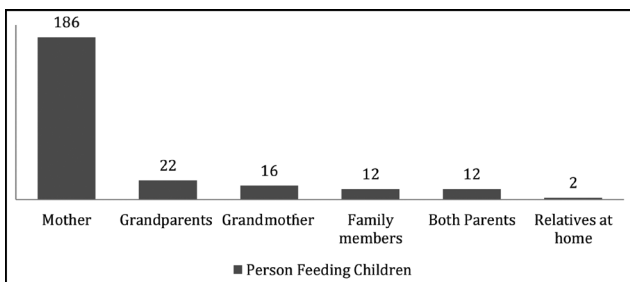
However, when asked about the frequency of feeding, more than half (58%) of the mothers fed their children less than five times whereas 42% mothers fed more than five times a day [Graph 3].

When asked about continuation of breast-feeding/complementary feeding in various disease situations, around 237 (95%) mothers agreed to continue breast-feeding/complementary feeding if she had fever whereas 226 (91%) agreed to continue breast-feeding/complementary feeding if the child had fever. If the child is having vomiting, 159 (63%) of the surveyed mothers did not want to breast-feed. But when it comes to diarrhea, 181 (72%) mothers agreed to continue breast-feeding [Table 5].

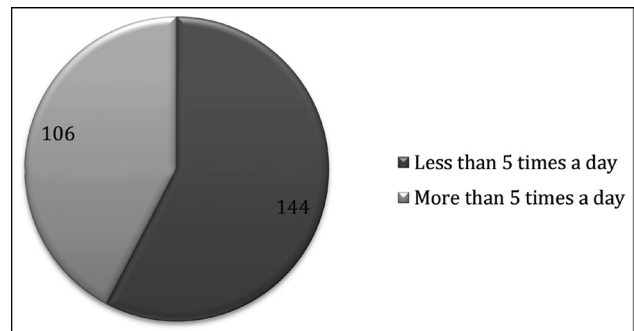
When mothers were asked about whether to continue or stop feeding if their children developed fever or diarrhea, mothers who were literate more likely to continue feeding compared to their illiterate counterparts. Literate mothers were observed to feed their children 2.4 times more if they had developed diarrhea ($\chi^2 = 9.2986$, $df = 1$, $p < 0.01$; OR = 2.4209; 1.3610–4.3063) and 3 times more likely during the episode of fever ($\chi^2 = 6.8517$, $df = 1$, $p < 0.01$; OR 3.3962; 1.3002–8.8713).



Graph 1: Knowledge about complications associated with unhygienic food.



Graph 2: Person feeding children.



Graph 3: Frequency of feeding.

Table 5: Continuation of breast-feeding/complementary feeding in various situations

Questions	Answers	Education level				
		Literate	Just literate	Total		
Q: Mothers are having fever	Continue feeding	121	51.05%	116	48.95%	237
	Stop feeding	5	38.46%	8	61.54%	13
Q: Child having fever	Continue feeding	120	53.10%	106	46.90%	226
	Stop feeding	6	42.86%	8	57.14%	24
Q: Child having diarrhea	Continue feeding	102	56.35%	79	43.65%	181
	Stop feeding	24	30.77%	54	69.23%	69
Q: Child having vomiting	Continue feeding	49	53.85%	42	46.15%	91
	Stop feeding	77	48.43%	82	51.57%	159
Q: When mother taking medications	Continue feeding	65	47.45%	72	52.55%	137
	Stop feeding	61	53.98%	52	46.02%	113

Discussion

Most mothers have adequate milk for proper growth of an infant up to 6 months of age. However, it is commonly observed that mothers often introduce top milk to infants much before 6 months as they think their milk is insufficient either because of their perception of inadequate growth of infant or perceived cause of child crying too often.^[2]

Complementary feeding should be initiated at “6 months” of age using foods that are available at home and acceptable to mothers, appropriate portion size of feeds, optimal meal frequency and food density, and encouraging the child to eat. Complementary feeding practices are directly related to healthy children. Although indicators describing optimal breast-feeding practices have been available and have been in use for some time, consistent and reliable indicators for optimal or adequate complementary feeding have been lacking.^[3,4]

Table 2 shows that in this study, most common reasons given for introducing complementary feeding were insufficient milk secretion (91; 37%) and poor growth of child if only on breast milk (85; 34%). This was similar to the study conducted by Pathi and Das,^[5] where the main cause of nonexclusive breast-feeding was inadequate or no milk secretion (69.3%), the other reasons were child’s health (9.3%) and mother’s health (3.6%). However in a study conducted by Aggarwal et al.,^[6] the most common cause of stopping breast-feeds in mothers was “not enough milk” (36.4%) and 31.8% had stopped breast-feeding because of next pregnancy, which again differs from this study. In the study conducted by Faridi^[7] “not enough milk” or “milk has not come” were the two most common reasons for early stopping of breast-feeding.

Most common reasons for starting complementary feeding

This study	Insufficient milk secretion (37%)
Pathi and Das ^[5]	Inadequate milk secretion (69.3%)
Aggarwal et al. ^[6]	Not enough milk (36.4%)
Faridi ^[7]	Not enough milk (percentage not available)

Table 3 shows distribution of various food items used during complementary feeding. Majority (44%) of mothers started with cow’s milk followed by cereal-based preparations (20.80%). During the survey, mothers were asked to innumerate various food items they used to introduce complementary feeding.

Assessment of Knowledge about Hygiene Maintenance during Preparation of Food for Children

Knowledge about hygiene among mothers was assessed through an open-ended question about various measures mothers would take to maintain hygiene during preparation of food for their babies. Mothers were asked to enumerate two steps they would consider before preparing food. Similar answers were grouped together. There were five groups.

Table 4 shows that the three most frequent answers were clean vegetables, clean kitchen, and clean hands, with clean vegetables (82; 32.8%) being the most frequent one.

A total of 17% did not know any measures about maintaining hygiene. The association between educational status of mothers and measures for hygiene maintenance were studied. It was found that education had no association with awareness about hygiene.

Graph 1 describes perception of mothers about common illnesses associated with poor feeding practices. All the mothers were asked about the complications associated with poor feeding habits. Mothers mentioned diarrhea (74; 30%) and vomiting (56; 22%) as most common illnesses associated with poor feeding practices. Other common answers were frequent illnesses and poor growth.

One of the important factors affecting infant nutrition status is caregiver of the child. Many times a child is being fed by persons other than mothers.

Graph 2 shows the distribution of persons feeding the child. Most common answer was mother. Majority (186) of mothers would feed their children themselves. This brings out an important interventional target. Because mothers are the primary caregiver, educating them toward better child feeding practice may lead to improved child health.

Graph 3 mentions about frequency of complementary feeding. As per IMCI (Integrated Management of Childhood Illness) protocol, child should be fed at least five to six times a day.^[8] During current survey, it was found that more than half (58%) of the mothers fed their children less than five times whereas 42% fed more than five times a day. This was much higher than that found by Aggarwal et al.^[6] in a study conducted at Delhi, wherein 3.5% mothers started complementary feeding at proper time, in adequate quantity and with proper consistency.^[6]

Table 5 shows details about mother’s perception of continuing feeding in case of child having illnesses. From the data it can be inferred that literate mothers are three times more likely to feed children during the episode of fever (OR = 3.3962; 1.3002–8.8713). There is also strong association between feeding of child during fever and education status of mother ($\chi^2 = 6.8517$, $df = 1$, $p < 0.01$). The table also suggests that literate mothers are 2.4 times more likely to feed their children if they had developed diarrhea compared to just illiterate mothers. This information is also statistically significant ($\chi^2 = 9.2986$, $df = 1$, $p < 0.01$; OR = 2.4209; 1.3610–4.3063).

No comparable studies are found to collaborate findings.

Conclusion

The most common reasons for introducing complementary food were “inadequate breast milk” and “poor growth of child” as perceived by the mothers. Cow’s milk immersed as the most preferred food item to start complementary feed. Ideal combination of food items for complementary feeding was practiced by only 21.2% mothers. A total of 58% mothers had fed their children for less than five times a day. When mothers were asked about hygiene maintenance, most common answer was clean vegetables (33%) followed by clean kitchen (27%). Almost one-fourth of the surveyed

women (66/250) could not enumerate two steps of hygiene maintenance. A total of 95% mothers agreed to continue breast-feeding if they had fever and 91% mothers agreed to continue breast-feeding if child had fever. Regarding diarrhea and vomiting, 72% and 63% mothers agreed to breast-feeding, respectively.

Recommendations

Anganwadi worker and primary health center staff, including medical officer, should impart proper complementary feeding education at every chance they get to meet mothers or would-be mother. Maternal literacy again comes out as an important influencing factor that reiterates the significance of female education.

References

1. Waterlow JC. Observations on the natural history of stunting. In: *Linear Growth Retardation in Less Developed Countries*, Nestle Nutrition Workshop Series. Vevey, Switzerland: Raven Press, 1988. pp. 5–8.
2. Taneja DK, Misra A, Mathur NB. Infant feeding—an evaluation of text and taught. *Indian J Pediatr* 2005;72:127–9.
3. Piwoz EG, Huffman SL, Quinn VJ. Promotion and advocacy for improved complementary feeding: can we apply the lessons learned from breastfeeding? *Food Nutr Bull* 2003;24(1):29–44.
4. World Health Organization. *Indicators for Assessing Breastfeeding Practices*. Reprinted Report of an Informal Meeting, June 11–12, 1991, Geneva, Switzerland. WHO/CDD/SER/91.14.
5. Pathi S, Das BC. Breast feeding practices in a rural ICDS block of Khallikote, South Orissa. *Indian J Commu Med* 2005; 30(4):154.
6. Aggarwal A, Verma S, Faridi MMA, Dayachand. Complementary feeding—reasons for inappropriateness in timing, quantity and consistency. *Indian J Pediatr* 2008;75:49–53.
7. Faridi MMA. Health Care System in the Protection, Promotion and Support of Breastfeeding. *Solution Exchange for Maternal and Child Health Community News Letter, Breastfeeding Month Special*. August 2008;7–8.
8. National Guidelines on Infant and Young Child Feeding. Ministry of Women and Child Development. Food and Nutrition Board, Government of India. 2006;1.

How to cite this article: Trivedi BY, Vyas SN, Dave BS, Desai KA. Complementary feeding practices among mothers of Waghodia Taluka of Vadodara: a knowledge, attitude, and practice study. *Int J Med Sci Public Health* 2015;4:647-651

Source of Support: Nil, **Conflict of Interest:** None declared.