

## Feeding of Infants and Young Children in Tsunami Affected Villages in Pondicherry

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*The study was conducted to identify the problems related to feeding of children post tsunami in four villages in Pondicherry. Data were collected from 100 randomly chosen families who had an Infant or a Young child below 3 years of age during Tsunami. Informants were the mothers. In the population studied, 30% mothers did not exclusively breast feed for 6 months; 58% bottle fed their children and 51% fed their infants with commercial formula. The occurrence of diarrhea was three times higher among children who were fed with free Breast milk substitutes (BMS) than in those who were not fed with the same. Those populations, wherein a pre-existing tradition of artificial feeding is present, infants are at further risk during a crisis situation like Tsunami. Breast feeding practices need strengthening even in routine conditions to tackle a disaster rather than intervention after the disaster.*

**Key words:** Emergencies, Infant feeding, Tsunami.

**D**ISASTERS have the greatest effect on the most vulnerable groups, especially children(1). Shortage of food and potable water, hypothermia due to poor sheltering and loss of protection are some of the direct consequences faced by a child following a disaster. In emergencies, such as the one caused by the December 2004 Tsunami, breastfeeding is of critical importance as it saves babies' lives. Even in such special situations where artificial feeding is inevitable, the basic resources needed such as clean water and fuel are scarce in emergencies. Artificial feeding in these situations is difficult and increases the risk of diarrhea, malnutrition, infections and infant death. Where a pre-existing tradition of exclusive and continued breastfeeding is absent, infants may be more at risk in a crisis

situation. Breast milk substitutes (BMS) donated as humanitarian aid often end up in the local market and can cause a negative influence on feeding practices in the host community.

Information related to the feeding of Infants and young children is limited, given the difficulty of data collection during disasters. The post Tsunami situation in Pondicherry was therefore used to study such feeding practices. Our objectives were (i) to describe the pre existing feeding practices of infants and young children among the Tsunami affected community; (ii) to assess the use of Breast milk substitutes donated during Tsunami and the related morbidity.

### Subjects and Methods

Four Tsunami affected villages - Veeram-

pattinam, Kanapathichettikulam, Panithittu and Pudhukuppam in Pondicherry were identified for this descriptive study based on convenience of approach. One hundred families with at least one child less than 5 years of age were interviewed using a pretested questionnaire (after a pilot study on 10 respondents) set in the local language Tamil. As the data collection time was only one month (due to administrative reasons) and there were unprecedented rains during the given month of November 2005, it was decided to cover only 100 families. Using the criteria that each study unit in the sample is a family with at least an under 5 child, house to house visits were made in the 4 villages serially till 25 such families were identified in each. The questionnaire was administered to the mother in each family by a pediatrician and two interns with the assistance of local volunteers from the Knowledge Centers of M.S. Swaminathan Research Foundation, Pondicherry. From the experience of these 100 interviews, 3 key informants were chosen for In-depth interviews and another 5 mothers along with non formal leaders, Youth Club members and social workers of the village forming a total of 10 for a focus group discussion. Chi square test was used for statistical analysis of data related to BMS consumption and occurrence of diarrhea.

## Results

Out of the 176 children in the study group 92(52%) were males and 84 (48%) females. There were 33 (19%) infants and 143 (81%) children in the age group 1-4 years. Among the 100 mothers interviewed, 51% had initiated breastfeeding within one hour of delivery and 23% of them had given sugar water as prelacteal feed to their babies. Exclusive breastfeeding for six months was not practiced by 30%. However, 69% had breastfed their babies for more than a year.

Commercial formula was used as the predominant complementary feed by 51% while cow's milk and rice were used by 11% and 38% respectively. Bottle was predominantly used for complementary feeding by 58% while paladai and cup were used by 8% and 34% respectively.

Within 15 days after Tsunami, 8 (5%) children had chickenpox, 25 (14%) had lower respiratory tract infections, 10 (6%) had dermatological problems and 37 (21%) had diarrhea. Out of these 37 children with diarrhea 27 (73%) had consumed free BMS distributed while 10 (27%) did not consume the same. This higher occurrence of diarrhea among the children who consumed BMS was statistically significant (*Table I*). The focus group discussions, key interviews and the interaction with the 100 respondents revealed that 72% of the families had received free BMS though none of them actually qualified to receive it. However, Boiled water was used for drinking after Tsunami and all children with diarrhea had received ORS.

Among the 100 mothers interviewed, 67% felt that breastfeeding was affected after tsunami. The feeding pattern of the children before and after Tsunami was the same according to 95% mothers and 96% of them felt that there was no increased milk powder use after tsunami. The common opinions among mothers with regard to breastfeeding are shown in *Table II*.

**TABLE I—BMS Consumption and Diarrhea**

	Diarrhea		Total
	Yes	No	
BMS consumed	27	5	32
BMS not consumed	10	134	144
	37	139	176

$\chi^2 = 94.6$   $df = 1$   $P < 0.001$ .

**TABLE II**—*Common Opinions Related to Infant Feeding*

Common opinions	Yes	No	Don't know
When a child has diarrhea breastfeed should not be stopped	36	64	0
Stress in the mother decreases milk production	86	4	10
Once stopped, breastfeeding cannot be restarted	42	56	2
A malnourished mother cannot breastfeed her baby	74	12	14

### Discussion

This study revealed that 30% mothers did not exclusively breast feed for 6 months, 58% of the children were bottle fed and 51% infants fed with infant formula. Hence, these children are at risk for diarrhea even in normal conditions and at a higher risk during a crisis situation like Tsunami.

Measles, diarrhea, acute respiratory infections, malaria, and malnutrition are the major diseases of children in these disasters (2,3). Five per cent of the children in this study had Chicken pox after Tsunami. Over-crowding in the common temporary shelters and the increased incidence in the adult population probably contributed to this morbidity. The occurrence of diarrhea was three times higher among children who were fed with free BMS than in those who were not fed with the same. The in-depth interviews and the focus group discussions revealed that there was blanket distribution of free BMS post Tsunami. Seventy two per cent of the families had received free BMS though none of them actually qualified to receive it(4-6). The powder was provided in polythene packs with the label "milk powder" and showing ISI mark. However, it was uniformly felt that the powder was of poor quality and mostly consumed by the adults in the family due to fear of diarrhea in children.

Most mothers in the villages studied were

under stress and were in the process of frequent shifting between their homes near the sea shore and the temporary relief shelters due to rumours of repeat Tsunami. They did not eat well in anxiety and hence could not breastfeed their babies properly. If supplies of BMS were widely available during emergencies, mothers who might otherwise breastfeed might needlessly start giving artificial feeds. As artificial feeding was pre existing in the study population, the free distribution of BMS after Tsunami did not have much impact in their feeding pattern and milk powder was used the same way as pre Tsunami period.

This study also revealed that the wrong customs and beliefs among mothers related to infant and young child feeding were the same pre and post Tsunami and these could have aggravated the occurrence of diarrhea along with the inappropriate distribution of poor quality free Breast Milk Substitutes (BMS) post Tsunami. The harmful effects of prelacteal feeding and bottle feeding and the appropriate feeding of children during diarrhea are important areas where correct scientific information is required to reach the rural mothers. Hence, there is a need for intensified health education to clarify their doubts and encourage breastfeeding especially during emergencies(7). In fact, Breast feeding practices need strengthening even in routine conditions to tackle a disaster rather than intervention after the

### Key Messages

- Where a pre-existing tradition of artificial feeding is present, infants may be more at risk in a crisis situation.
- Breast feeding practices need strengthening even in routine conditions to tackle a disaster rather than intervention after the disaster.

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### REFERENCES

1. Redmond AD. Natural disasters. *BMJ* 2005; 330: 1259-1261
2. Orellana C. Tackling infectious diseases in the Tsunami's wake. *The Lancet Infect Dis* 2005;
3. Brennan RJ, Rimba K. Rapid health assessment in Aceh Jaya District, Indonesia, following the December 26 tsunami. *Emerg Med Australas* 2005; 17: 341-350.
4. Guiding principles for feeding infants and young children during emergencies. Geneva, World Health Organization, 2004.
5. Seal A, Taylor A, Gostelow L, McGrath M. Review of policies and guidelines on infant feeding in emergencies: common ground and gaps. *Disasters* 2001; 25: 136-148.
6. Sankaranarayanan K, Mondkar JA, Chauhan MM, Mascarenhas BM, Mainkar AR, Salvi RY. IAP Workshop on Disaster Management Practices: Recommendations and IAP Plan of Action. *Indian Pediatr* 2005; 42: 887-903.
7. Patten T. Breastfeeding promotion: A vital emergency intervention disregarded? *Afr Health* 1997; 19: 24.