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## WEANING PRACTICES OF RURAL WOMEN IN CHANDAULI DISTRICT, UTTAR PRADESH, INDIA

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### Abstract

Weaning is the process in which an infant's diet pattern is gradually changed from liquid foods like breast milk and substitute milk preparations to cooked solid foods. The main purpose of the study was to describe the weaning practices of women residing in the Chandaulia district of Uttar Pradesh, India, whose babies were between the ages of six and nine months. A descriptive survey was conducted on 120 mothers attending Anganwadi centre/health centre in Chandaulia district. Convenient samples of 120 mothers were interviewed. Data was collected on breast-feeding, weaning as well as the current feeding practices. It revealed that breastfeeding was initiated by 80% women at birth. Only 20.8% of women were exclusively breastfeeding till five months. Early weaning was associated with mother's perception of poor quantity and quality of breast milk i.e. 45.2%. Partial breastfeeding was practiced by 79.2% of the respondents and women were found using a variety of milk formulas to substitute breast milk. Analysis of factors that might have influenced the early supplementation, 45.2% women indicated that dissatisfaction with milk insufficiency was the reason for stopping breast feeds. The research findings suggest that the perceptions of women regarding appropriate time of introducing solids differs from that of health professionals and exclusive breastfeeding rates in the villages are very low. Solids are introduced as early as in the first week of life.

Keywords: Weaning, Breastfeeding, Solid Food, Infant Feeding

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### Introduction

To understand infant health in a specific community, knowledge of its infant feeding practices and weaning is essential (Filer, 1993). Weaning is the name given to the infant's gradual transition from a diet of milk as the sole food to a mixed diet containing a variety of foods. The weaning period is a particular time of risk for the infant's nutrition. The pattern of infant feeding affects the nutritional status, health status and growth and development of children (Palikadavath et al, 2004). The period of weaning is one of the most critical periods in an infant's life. It is well known that there is a higher rate of infection, particularly diarrhoea, during weaning than any other period of life. This is because the diet changes from clean breast milk, which contains anti-infective factors, to foods that are often prepared, stored and fed in unhygienic ways (Lenderman, 2000). Another reason is because the immunity derived from the mother is by now at a low level and the infant has to acquire his own immunity (Hediger et al, 2000). In addition, foods given to infants are based on cereals and tubers which lack essential nutrients (Ebrahim, 1978). On the other hand it is vital that the diet of more vulnerable children be examined

objectively with a view of finding practical solutions for improvement of weaning practices (Steyn et al, 1993).

Another dangerous side of weaning is that the infant's immunity system is challenged by a variety of new and potentially dangerous infectious agents. Breast milk with its anti-infective properties is progressively diluted and replaced by foods which may introduce pathogens. Although weaning foods may be prepared by boiling in water which would destroy any heat sensitive organisms, furthermore, post cooking practices and handling can result in re-contamination of the food (Dykes, 2000).

The age at which solid foods are introduced varies in different communities from a few weeks to the end of the first year or even the second year of life (Barker, 2004). The range of time over which weaning may occur, successfully is wide but there are some limits also. Weaning too early is not tolerated by the young infant's immature gastro intestinal tract, liver and kidneys. Weaning too late may not permit normal growth, development and metabolism (Wharton, 1991). For example, human milk provide little iron and copper, but

young breastfed infants normally use their haemoglobin and hepatic stores of these elements; eventually, these are depleted and a low serum ferritin develops as iron stores are used up by six months. Serum ferritin in infants fed unmodified cow's milk is low by four months (Wharton, 1991). Longitudinal studies done in other countries such as New Zealand, Finland and Scotland Has revealed that delaying of introduction of solids until the age of 4-6 months will protect the infant especially if there is a history of allergy in that family (Fergusson et al, 1999; Saarinen et al, 1998; Forsyth et al, 1993). Several studies have calculated the age when breast feeding alone becomes inadequate to meet the theoretical requirements of the infants with normal birth weight. For most calculations, this age varies between three and four months, depending on the assumptions about breast milk volume, growth; estimated energy content of milk; and estimated requirements for protein and calories. Studies that have compared the growth of infants fed with solid foods at early and later age's show that in general, the total infant's weight increased with introduction of solid food at a later age (Taitz et al, 2000). In Senegal, introduction of supplementary food to infants by the ages of two to three months is associated with slower growth compared to those given complementary food after six to seven months of age (Dar et al, 2004). It was suggested that the introduction of complementary food between two to five months should be discouraged and its introduction at six months should be encouraged (Simondon and Simondon, 1997).

The general concept is that infants should commence weaning between four and six months of age. Since milks of all types are excellent sources of energy and essential nutrients and are still available, almost worldwide, at a reasonable cost, their intake should not fall significantly during weaning, if possible. Also maternal milk is likely to continue to confer some protection against infection; in poor households where nutrition and hygiene are compromised, usually in developing countries like India, prolonged breastfeeding for at least up to a year should encouraged. (Crolden, 2000).

Weaning foods are chosen on the basis of their flexible consistency, availability, their taste and acceptability by the infants. They should aim to be more energy dense than milk, to be well balanced with respect to essential nutrients, but to improve the status of these nutrients it must be supplemented by milk. Different weaning foods have different nutrient composition. The comparative study of some commercially prepared Indian Infants cereal is given in Table 1. While choosing weaning foods the need of the infant should be kept in the mind. The nutritional and health status of the infants mainly depends on the feeding practices of the community. It is seen that the child rearing practices differ in different regions in the same state. Continuous vigilance over infant feeding practices in community is necessary for timely interventions to ensure optimal growth and development. This study was undertaken to evaluate weaning practices in relation to nutritional status of infants in Chandaulia district of India.

### **Methods**

The design of this study was descriptive survey. The objectives were: to investigate the early feeding practices in infants from zero-nine months in the tribal areas of Chandaulia district, India, to identify the factors affecting feeding practices, to analyse the factors influencing their choice of feeding methods and to identify the source of information for mothers regarding feeding practices.

#### **Sample:**

Health care centres called "Anganwadi" of six different villages of Chandaulia district were selected randomly for this study. A convenience sample of 120 mothers 18 to 30 years were selected from each village to make up a total sample of 120 mothers. The purpose of the study was explained to them and verbal consent was taken.

#### **Survey instrument:**

An interview cum questionnaire approach was taken to provide information on weaning from zero to nine months. The interview style and the questionnaire were structured according to observation of previous work with infants (Richter, 1994; Van der Boom, 1995, Mridula,

2000 and Tjale, 2001). Interview questionnaire were pre-tested on twenty mothers whose children were between the ages of six to nine months and minor adjustment were made accordingly. The questionnaire consists of two parts. Part one of the questionnaire was used to collect demographic variables of the family. The second part consisted of questions designed to determine feeding practices during the period of birth to four months and during six to nine months. These sections were designed to elicit information on formula and breastfeeding and consumption of other foods.

Standard descriptive analysis was conducted.

## Results

### Infants feeding at age zero to three months

At the time of interview i.e. when children were between the age of six and nine months, 80% of respondent mothers indicated that their children were breastfed at birth. The rate of exclusive breastfeeding was very low at 20.8%. Infant feeding choices are influenced by social and cultural factors (Jan et al, 1995). The different reasons given by respondents for not breastfeeding their infants are shown in Table 2. The percentage of babies who continued to receive a combination of breast milk, formula and other feeds were very high i.e. 79.2%. 29.3% of the babies were commercially available formula fed by the end of first week. Further investigation showed 60% of infants were given solid food in the first three months of life.

### Supplementary Infant Feeding at age three to four months of age

The most frequent reason given by mothers for introducing supplementary feeding was insufficient breast milk i.e. 45.2%. Illness of mothers was cited as the second cause for supplementation. The third major cause was evenly distributed between correct age for starting solids and working mothers. Unsatisfied crying babies were also given as problems that caused failure to fully breastfeed the infant. Generally mothers assume that crying infants are hungry. By the three months 40.5% of respondents were giving formula feeds. Of these, 30.2% were bottle fed during the first week of life. Working and sick women

were more likely to introduce early supplementation. While introducing solids, four different methods of feeding were used by the respondent mothers. Almost 78% used a spoon, 13% used a bottle, 5% used a cup and 4% fed the infants by hand.

**Table 1: Nutrient Values /100g for various types Of Cereals**

Nutrients	Values /100g of Cereals		
	Nutra	Faxen	Cerelac
Energy (Kcal)	1574	1823	1730
Protein (g)	19	15	15
Carbohydrate (g)	73	67	68.2
Fat (g)	3	12	9
Fibre (g)	-	0.2	2.3
VITAMINS			
Vitamin A IU	1300	1320	1000
Vitamin D IU	250	396	200
Vitamin E IU	4	0.3	3
Vitamin C (mg)	35	20	35
Vitamin B1 (mg)	0.55	0.6	0.8
Vitamin B2 (mg)	0.4	0.8	0.3
Vitamin B6 (mg)	0.3	-	0.3
Vitamin B12 (mcg)	0.95	-	0.75
Folic Acid (mg)	19	-	22
Pantothenic acid (mg)	1.9	-	1.5
MINERALS			
Sodium (mg)	150	2.8	150
Calcium (mg)	335	470	440
Phosphorus (mg)	466	380	360
Iron (mg)	19	0.1	7.5
Magnesium (mg)	44	-	-
Zinc (mg)	3	-	-
Iodine (mcg)	-	-	-

**Table 2: Reasons given by respondents for not breastfeeding their infants**

Reasons	Percent N=25
Religious taboos	16.0
Crying baby	8.0
Family norms	16.0
Thirsty baby	8.0
Not enough milk	28.0
Going back to work	12.0
Sickness of mother	12.0
Total	100

### Feeding Practices at six to nine months of Age

#### Infant Feeding Practices four to six months of Age

The different infant foods that were introduced by the respondents as the first solid foods are shown in Table 3. It was found 60% of the mothers gave gruel made up of rice and cereals as their first choice. Further investigation on the reason for their choice of first food was the availability of the food at home. The respondents believe that this food is appropriate

because it is present almost in every home. Only 5.9% of respondents reported feeding infants the commercially bottled infant food. The main reasons for not using commercially packaged foods were cost and unavailability of commercially bottled infant food in the villages.

By six to nine months of age 90.2% of the infants were being fed three meals a day. These three times were divided into breakfast, lunch and dinner. Milk consumption was decreased to one or two times a day i.e. early in the morning and before sleeping. A high percentage, 80.8% of infants were fed with boiled and mashed potatoes, plain or with the addition of little salt and ghee (fat). Other vegetables such as carrots, pumpkin, cauliflower and spinach cooked with milk or buttermilk were also fed by 12.2% of the respondents. At lunch time gruel made up of rice with combination of different pulses and oil were given by 71.2% of mothers. Poshtik porridge made up of whole wheat, ground Bengal gram, milk, oil and jaggery were also fed by 28% mothers. At dinner time 30% mothers gave some pulse kheer with banana and 50% of the mothers gave potato gruel made up of potatoes, jaggery and groundnut milk. These foods are locally present in abundance in the selected villages.

**Table 3: Different infant foods that were introduced as the first solid foods by the respondent mothers**

First Solid Foods	N	Percent
Rice and pulse gruel	72	60.0
Pulse soup	8	6.6
Mashed potatoes	18	15.0
Mashed rice	15	12.5
Commercial food	7	5.9
Total	120	100

The subject stated that they received information regarding weaning practice from Anganwadi health worker (60.1%), private clinic doctors (21%), their mothers (10.8%), and peer group (8.1%).

### Discussion

Breast-feeding is the ideal food for an infant. On 18 May 2001, World Health Organization endorsed exclusive breast-feeding till an infant is 6 months of age. In the present study breastfeeding at birth was initiated by most women respondents (80%). At four months the

prevalence of exclusive breastfeeding was lowered to 20.5%. In a worldwide study of 45 different cultural and ethnic groups, it was found that on an average infant were breastfed for one and a half years (Brown et al., 1999). In a study by Wagstaff et al (2002), the average period for breastfeeding was eleven weeks. Saarinen (1998) stated in their study that exclusive breastfeeding for the six months provides benefits for the infant that extend to adulthood.

The practices that are very common in India, are giving water with sugar, crushed sweet date, jaggery etc just after birth as a first feed may introduce infection to the baby and is also counter-productive to the stimulation of breast milk through suckling. Mixing breast milk with other foods diminishes the effects of breast milk for the infant. It was found that pre-lectal feeding was almost universal, and it was common to delay breastfeeding initiation for several days. Many studies from India and other South Asian countries have indicated that women commonly wait several days after birth to begin breastfeeding, avoid giving colostrums, or supplement breastfeeding with other foods or liquids (Talukdar, 2000; Huffman et al, 2001; Aneja, 2002; Ray et al, 1998). However, finding from the present study compare poorly with recent studies from Nepal and Pakistan, which shows early breastfeeding initiation rates of 91% and 85% (Osrin et al, 2002; Vani et al, 2005). It is often argued that the partial breast feeding is better than no breast feeding when considering the nutritional value of breast milk (Coovadia and Wittenberg, 2005). It was found by Adele, 2001 that breast feeding at four to six months were very low (25.5%) in South Africa. The Department of paediatric, Varanasi, India (2003) stated that data are fragmented and the prevalence of exclusive breastfeeding in infants under six months of age is unknown. According to Indian Medical Association of India (2004), the supplementary foods should be introduced from four months, In Parabani, India, there is no weaning. Infants graduate to adult food directly from breastfeeding (Brown, 1999). M.N. Anokwulu (2002) reported that the age at which solid food is introduced varies in different communities from a few weeks to the

end of the first year or even the second year of life.

In the present study, perception of breast milk insufficiency, baby refusal and crying babies result in almost 66% of the mothers substituting the breast milk with bottle feeding. It appears that women will introduce supplementary feeding according to their own perception of the child's need and mother's ideas about when the child is ready for other foods (Richter, 1994). It is amazing and important to note in the present study that all the respondents' mother (100%) reported that only "chewable" foods were not suitable for the infant less than three months. It is revealed that women will continue to feed the infant solids at three months if the consistency of the food is "soft". In other study done by Hemant (2000) in India, the infants who had complementary food after the ages of two to three months and before the ages of four to five months were associated with slower growth compared to those given complementary food after six to seven months old. He suggested that the introduction of complementary food at two to five months should be discouraged but its introduction at six months should be encouraged. On the other hand it was noticed that in KwaZulu/Natal, South Africa, it was common practice to give solid food first and then the breast (Faber, 1997). The methods used for feeding were 13.3% by spoon, 77.6% by bottle, 5% by cup and 4% by hand. Although only 4% of mothers reported feeding by hand, Sawage and Burgess 1992, recommended that hand feeding should be discouraged as it increases the risk of infection to the infant. Thus, it is better to teach mothers to wash their hands as well as the child's hands before feeding because in India hand feeding is a cultural Norm.

Present study revealed that only 5.2% respondents used commercially bottled infant formula. In contrast, in South Africa, more than half of the respondents gave the commercially bottled infant formula. Convenience and suitability of some of these products were reason cited by women for their choices, (Adele, 2001). When introducing solid, the knowledge of weaning is very necessary especially in village areas because weaning period is one of the most crucial

periods in an infant's life in terms of exposure to pathogens as well the nutrient density of the weaning food. Since foods given to infants are based on cereals and tubers which lack essential nutrients. Thus, knowledge should be provided to the women by trained health professionals since 60% of respondent reported that Anganwadi Health Worker was their source of information.

### **Conclusion**

Weaning practices in Indian villages are almost similar to patterns followed by other developing countries. The findings in this research reveal that exclusive breastfeeding rates in the villages are very low and that the solids are introduced as early as in the first week of life. Thus, women should be counseled regarding appropriate breast feeding and weaning practices during the ante-natal. Information on financial planning and budgeting should be included in health promotion to assist women in making correct choices to assist women in making correct choices and decision about weaning. They should know that no other food is sufficient to take the place of mother's milk. Other preparations are adequate sources of additional nourishment from the sixth month of the infant's life. They should be informed that giving infant's foods before the age of six months adds unnecessary risks like diarrhoea, dehydration and death to the infant. Besides this, the present study suggests that the first line government health and development workers-auxiliary nurse midwives and anganwadi workers-could effect changes in feeding practices if they improved the coverage, timing and informational content of their outreach to pregnant women.

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