



Anemia and Feeding Practices in Children in Western Maharashtra

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Abstract

During infancy and early childhood, adequate amount of appropriate nutrition has paramount importance for full development of children’s potential. This period is also regarded as ‘critical window’ for child’s growth and development.

A cross sectional observational study was conducted to screen children between 6 months to 2 years of age for anemia and analyze their feeding patterns by interviewing mothers about breast feeding practices and 24 dietary recall.

Out of 582 children, 442 (76%) children had nutritional anemia respectively. Amongst the nutritional anemia patients, 243 children (55%) had co-existing malnutrition. Two hundred and seventy-nine children out of 582 i.e., 48% had a history of exclusive

breast feeding till 6 months of age, of which 164 had anemia. However, 52% followed other feeding practices and 92% of these children had nutritional anemia.

Complementary feeding was initiated at 6 months in 396 children (68%). However, the adequacy of complementary feeding could be established only in 105 children (18%), all of which did not suffer from anemia.

Thus, 82 children were exclusively breastfed, received proper nutrition from complementary feeding and all of them therefore, did not develop nutritional anemia.

The prevalence of exclusive breastfeeding rate in the present study was close to recommendations of infant and young child practice (IYCF) which

recommends global rate of exclusively breastfeeding for the first 6 months of life be at least 50% by 2025.

Keywords

Critical window, Nutritional anemia, IYCF

Introduction

The first 1,000 days of life - the time spanning roughly between conception and one's second birthday - is a critical window when the foundations of optimum health, growth, and neurodevelopment across the lifespan are established¹. Therefore, adequate amount of appropriate nutrition has paramount importance for full development of children's human potential.

Globally, an estimated 47% (293 million) of all preschool-aged children and 42% (56 million) of all pregnant women are anemic, with approximately half attributable to iron deficiency². A fourth National Family Health Survey (NFHS-4, 2015-16) revealed that at least 58.5 % of children between 6 months to 5 years are anemic³. Nutritional anemia is the most common cause of anemia seen in infancy.

As per NFHS-3 data, the exclusive breastfeeding rate upto the age of 6 months is only 46.3%. Exclusive breastfeeding rapidly declines from first to sixth month, and only about 20% children continue it by 6 months. The introduction of complementary feeding along with continued breastfeeding in children of 6-8 months is only about 55%⁴.

Complementary feeding is the process of giving a child other food while continuing breastfeeding, when her or his nutritional demands can no longer be fulfilled by breastfeeding alone.

This study is conducted to screen children between 6 months to 2 years of age for the presence of

nutritional anemia and analyse the patients of nutritional anemia in relation to breastfeeding and complementary feeding.

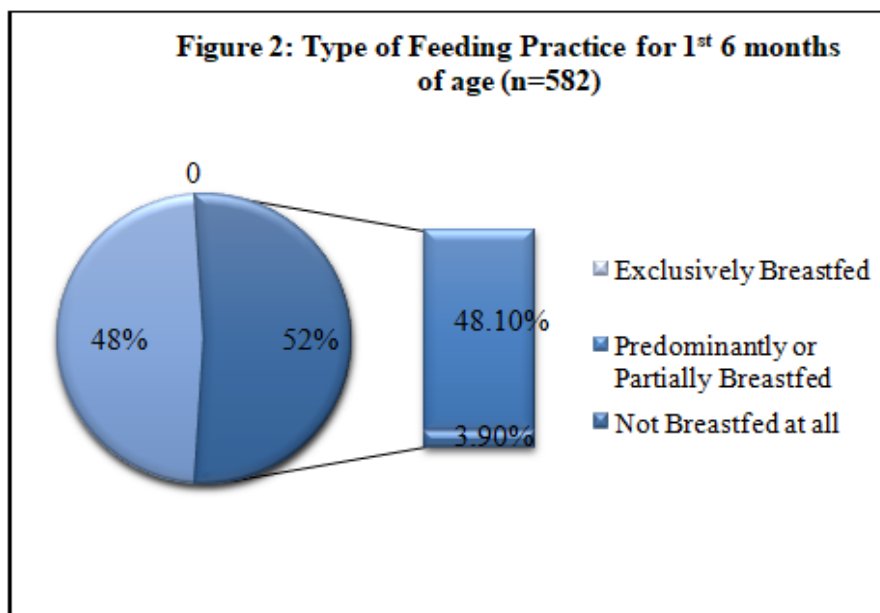
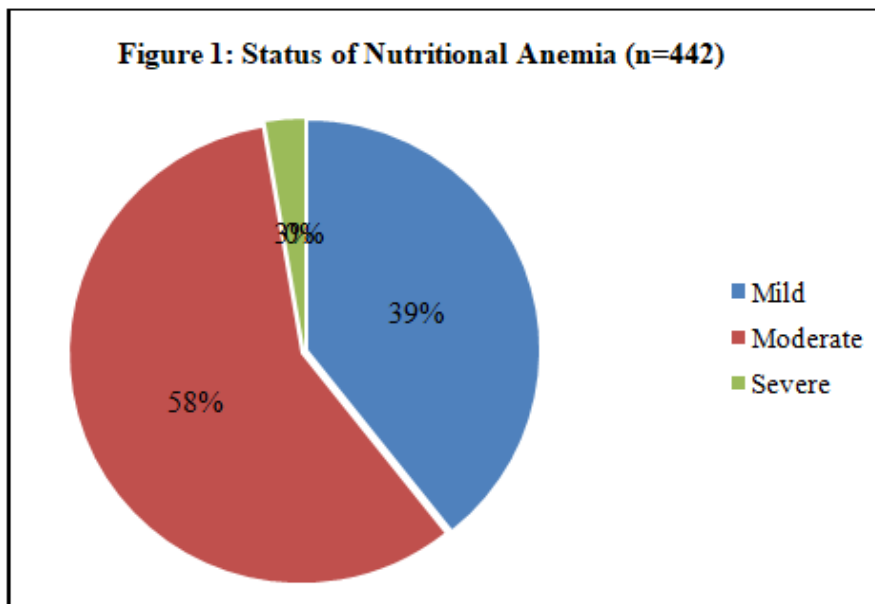
Methods

A cross sectional observational study was carried out at a tertiary health care centre in Pimpri, Pune on children between 6 months to 2 years of age. This study was conducted over a period of 12 months from January 2019 to January 2020. A total of 586 children were screened for the presence of anemia and children with anemia secondary to congenital leukaemia, a plastic anemia, thalassemia and anemia of chronic disease were excluded from the study. Mothers were then interviewed further about breast feeding practices and 24 dietary recalls was recorded.

Results

Out of 582 children, 442 (76%) children had nutritional anemia. Figure 1 shows that out of the total cases of nutritional anemia, 174 (29.9%), 256 (44%) and 12(2.1%) children had mild, moderate and severe anemia respectively.

Figure 2 shows that 279 children out of 582 i.e., 48% had a history of exclusive breastfeeding till 6 months of age, of which 164 had anemia. However, 280 children (48.1%) were either partially or predominantly breastfed and 23 children (3.9%) were not breastfed at all.



Amongst the 279 exclusively breast-fed patients, 164 (59%) and 115 (41%) children had nutritional anemia and no anemia respectively. On the other hand, amongst the patients who received other methods of feeding during the first 6 months, 278 (92%) and 25 (8%) children had nutritional anemia and no anemia respectively as shown in Table

1.

Table 1: Type of Feeding Practice for 1st 6 months of age with respect to Status of Anemia (n=582)

Type of Feeding Practice	Number of cases (%)		
	Anemia	No Anemia	Total
Exclusive Breast Feeding	164 (59)	115 (41)	279 (47.9)
Other Methods	278 (92)	25 (8)	303 (52.1)
Total	442 (76)	140 (24)	582

Out of the 442 cases of nutritional anemia, it was found that 164 children (37%) were exclusively breast-fed and 278 children (63%) received other methods of feeding.

Out of 582 children, 41.7% had malnutrition as per the WHO classification of malnutrition. Amongst the nutritional anemia patients, 243 children (55%) had co-existing malnutrition wherein 200 (82%) and 43 (18%) children had moderate acute malnutrition (MAM) and severe acute malnutrition (SAM) respectively.

Complementary feeding was initiated at 6 months in 396 children (68%) and in the rest by 7-8 months as shown in Table 2. However, only 221 children (38%) gained adequate calories as per age from the complementary foods administered. The adequacy of complementary feeding with respect to time of initiation, frequency and caloric intake could be established only in 105 children (18%), all of which did not suffer from anemia.

Table 2: Time of Initiation of Complementary feeding (n=582)

Time of Initiation of Complementary feeding	Number of cases (%)
Before 6 months	52 (9)
At 6 months	396 (68)
By 7-8 months	134 (23)
Total	582

Thus, 82 children (12.3%) were exclusively breastfed, received proper nutrition from complementary feeding and did not develop nutritional anemia.

Discussion

In the present study, the prevalence of exclusive breastfeeding till 6 months was 48%. However, 58% of these children had nutritional anemia which may reflect the possible risk factors like maternal anemia, socio-economic status and the children who were predominantly breastfed even after 6 months of age. This also explains the requirement of additional iron and calories in the form of complementary feeding and supply of iron fortified food beyond 6 months of age.

52% of the children were either partially breastfed or not breastfed at all and, 92% of these children had anemia which explains the necessity of exclusive breastfeeding among children till 6 months of age.

Although 396 mothers had timely initiated complementary feeding for their children, only 221

children (38%) received proper frequency of feeds. Out of these 221 children, only 105 (47.5%) received the right amount of iron and caloric intake and did not develop nutritional anemia.

Amongst the cases of nutritional anemia, nearly 60% of patients developed anemia either due to inadequate frequency or low iron content of the complementary feeds. However, about 40% of the cases had both the causes in common.

In the present study, the prevalence of nutritional anemia was 76% and, the prevalence of mild, moderate and severe anemia was 30%, 44% and 2% respectively. Sinha et al⁵ carried out a cross-sectional study in Wardha among 772 children between 6-35 months of age wherein the prevalence of

nutritional anemia was 80%. Amongst the nutritional anemia cases, 27.7%, 51.3% and 1.3% of the children had mild, moderate and severe anemia respectively.

The prevalence of malnutrition in the present study was lower compared to the study carried out by George et al⁶ in Kerala wherein malnutrition was seen in 53.2% of the patients and strong association was seen between undernutrition and anemia.

The prevalence of exclusive breastfeeding rate in the present study was close to recommendations of infant and young child practice (IYCF) which recommends global rate of exclusively breastfeeding for the first 6 months of life be at least 50% by 2025⁷.

The breastfeeding rate was comparable to a study carried out in Mexico in 2011 by Eva et al⁸ which suggested that of the 154 infants, 32% were predominantly breastfed, 37% were partially breastfed and 32% were formula-fed from 0 to 6 mo. A similar survey was conducted in Taiwan which showed that 45.6% of 6-month-old babies were exclusively breastfed in 2011⁹.

The study of prevalence of anemia in exclusively breast-fed infants done by Calvo et al¹⁰ reported that, at age 6 months, IDA was detected in 44% of the breastfed babies, but only in 14.3% of the formula-fed babies. Whereas in the present study nutritional anemia was detected in 59% of breast-fed infants and 92% of infants who were given other methods of feeding.

As per the study carried out in Shaanxi province of China by We fang et al¹¹, prevalence of anemia was seen in 35% of the infants and feeding practice was found to affect the prevalence of anemia. It was determined that 82.4% of infants were breast-fed during the first 4 months of life, and 31% of them had

anemia compared with 54.2% among those who were not breast-fed.

The study carried out in Karnataka by Sahana et al¹² revealed prevalence of anemia and malnutrition to be 56% and 39% respectively. Amongst the anemic patients, 22% had history of exclusive breast feeding till 6 months of age, 76% had a history of cow's milk supplementation and 30% had a history of formula feeding. Improper weaning technique was observed in 51% of the cases and was found to be an important risk factor for development of moderate to severe anemia.

Conclusion

Exclusive breastfeeding till 6 months of age and complementary feeding with iron supplementation thereafter will together help to reduce the incidence of nutritional anemia in children.

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