International Journal of Medical and Health Research
ISSN: 2454-9142
Received: 09-04-2019; Accepted: 08-05-2019
www.medicalsciencejournal.com
Volume 5; Issue 6; Jun 2019; Page No. 170-173

Assessment of the parent's knowledge of complimentary food and its outcome with respect to nutritional status of children

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Abstract
Improper complementary feeding or complementary feeding practices, coupled with high rates of infectious diseases, are the principal proximate causes of malnutrition during the first two years of life. For this reason, it is essential to ensure that mothers and caregivers are provided with appropriate guidance regarding optimal feeding of infants and young children. The present study was planned to assess the knowledge about the complimentary food and its impact on nutritional status of the childrens.
Total 25 cases of the malnutrition referred to the Upgraded Department of Paediatrics, Patna Medical College and Hospital Patna from Sept 2018 to march 2019 were enrolled in the present study. Data on feeding practices was collected by interviewing mothers using a pre-tested semi-structured schedule.
The data generated from the present study and the reported literature concludes that Improvement in child care and feeding practices could positively impact nutritional status of children. These interventions need to be at the household level using positive deviance approach and behavioural change communication strategies. It may be necessary to invest in community level change agents to facilitate the process especially in an already overburdened health system.

Keywords: dietary intakes, nutritional status, children, etc

Introduction
The level of child under nutrition remains unacceptable throughout the world, with 90 per cent of the developing world's chronically undernourished (stunted) children living in Asia and Africa. Detrimental and often undetected until severe, under nutrition undermines the survival, growth and development of children and women, and diminishes the strength and capacity of nations. With persistently high levels of under nutrition in the developing world, vital opportunities to save millions of lives are being lost, and many more millions of children are not growing and developing to their full potential. Nutrition is a core pillar of human development and concrete, large-scale programming not only can reduce the burden of under nutrition and deprivation in countries but also can advance the progress of nations.
In India 20 per cent of children under five years of age suffer from wasting due to acute under nutrition. More than one third of the world's children who are wasted live in India. Forty three per cent of Indian children under five years are underweight and 48 per cent (i.e. 61 million children) are stunted due to chronic under nutrition, India accounts for more than 3 out of every 10 stunted children in the world. Under nutrition is substantially higher in rural than in urban areas. Short birth intervals are associated with higher levels of under nutrition. The percentage of children who are severely underweight is almost five times higher among children whose mothers have no education than among children whose mothers have 12 or more years of schooling.
Under nutrition is more common for children of mothers who are undernourished themselves (i.e. body mass index below 18.5) than for children whose mothers are not undernourished. Children from scheduled tribes have the poorest nutritional status on almost every measure and the high prevalence of wasting in this group (28 per cent) is of particular concern. Under nutrition jeopardizes children's survival, health, growth and development, and it slows national progress towards development goals. Undernutrition is often an invisible problem. There is a critical window of opportunity to prevent undernutrition by taking care of the nutrition of children in the first two years of life, girls during adolescence, and mothers during pregnancy and lactation – when proven nutrition interventions offer children the best chance to survive and reach optimal growth and development [1].
Optimal infant and young child feeding entails the initiation of breastfeeding within one hour of birth; exclusive breastfeeding for the first six months of the child's life; and continued breastfeeding for two years or more, together with safe, age-appropriate and hygienically prepared complementary foods starting at 6 months of age. There is growing evidence of the benefits to mother and child of early initiation of breastfeeding, preferably within the first hour after birth. Early initiation of breastfeeding contributes to reducing neonatal mortality. It ensures early skin-to-skin contact, which is important in preventing hypothermia and establishing the bond between the mother and her child. Early initiation of breastfeeding also reduces a mother's risk of post-partum haemorrhage, one of the leading causes of maternal mortality.
Colostrum, the milk produced by the mother just after

delivery during the first post-partum days, provides protective antibodies and essential nutrients, acting as a first "natural" immunization for new-borns, strengthening their immune system and reducing the chances of death in the neonatal period. Optimal complementary feeding is the most effective intervention that can significantly reduce stunting during the first two years of life. A comprehensive programme approach to improving complementary feeding practices includes timely introduction of age-appropriate and hygienically prepared complementary foods, counseling for caregivers on feeding and care practices and on the optimal use of locally available foods, improving access to quality foods for poor families through social protection schemes and safety nets, and the provision of fortified foods and micronutrient supplements when needed. Vitamin and mineral deficiencies are highly prevalent throughout the developing world.

Anaemia in young children is a serious concern, because it can result in increased morbidity from infectious diseases and impaired cognitive performance, behavioural and motor development, coordination, language development, and school achievement. Vitamin A is essential for a well-functioning immune system; its deficiency increases the risk of mortality significantly. Vitamin A supplementation twice yearly reduces the risk of blindness, infection, under nutrition and death associated with vitamin A deficiency, particularly among the most vulnerable children [2].

Iodized salt consumed as table salt and/or as food-grade salt (used in food processing) improves brain development; prevents motor and hearing deficits. Zinc given as part of Oral Rehydration Therapy for the treatments for diarrhoea reduces duration and severity of diarrhoea and subsequent episodes Hand washing with soap by caregivers' and children prior to food preparation and eating, serving foods immediately after preparation, using clean utensils and avoiding feeding bottles helps reduce diarrhoea and associated undernutrition in the child. Every adolescent girl must be protected against undernutrition and nutritional deficiencies like anaemia through dietary counseling, weekly iron and folic acid supplementation, twice yearly de-worming prophylaxis. In addition developing life-skills to avoid early marriage and early pregnancy is also vital. Every pregnant woman must have access to sufficient quality and quantity food including during pregnancy and lactation. Every pregnant woman and breastfeeding mother must take iron folic acid supplements daily to reduce maternal anaemia and improve pregnancy and lactation outcomes. Regular consumption of salt with adequate levels of iodine is required by all pregnant women in order to prevent foetal brain damage associated with iodine deficiency. Significant disparity in nutritional status also exists in terms of mothers' education and literacy. A number of studies and analyses have found a significant association between low maternal literacy and poor nutrition status of young children.

In many developing countries, the low status of women is considered to be one of the primary determinants of undernutrition across the life cycle. Women's low status can result in their own health outcomes being compromised, which in turn can lead to lower infant birth weight and may affect the quality of infant care and nutrition. A study in India showed that women with higher autonomy (indicated by access to money and freedom to choose to go to the market) were significantly less likely to have a stunted child when compared with their peers who had less autonomy. Children who are undernourished, not optimally breastfed or suffering from micronutrient deficiencies have substantially lower chances of survival than children who are well nourished.

They are much more likely to suffer from a serious infection and die from common childhood illnesses such as diarrhoea, measles, pneumonia and malaria, as well as HIV and AIDS. According to the most recent estimates, child undernutrition contributes to more than one third of child deaths. Undernourished children who survive may enter the vicious cycle of recurring illness and faltering growth, with irreversible damage to their growth, cognitive development, school performance, and future productivity as adults [3].

Improper complementary feeding or complementary feeding practices, coupled with high rates of infectious diseases, are the principal proximate causes of malnutrition during the first two years of life. For this reason, it is essential to ensure that mothers and caregivers are provided with appropriate guidance regarding optimal feeding of infants and young children. The present study was planned to assess the knowledge about the complimentary food and its impact on nutritional status of the childrens.

Methodology

Total 25 cases of the malnutrition referred to the Upgraded Department of Paediatrics, Patna Medical College and Hospital Patna from September 2018 to march 2019 were enrolled in the present study. Data on feeding practices was collected by interviewing mothers using a pre-tested semi-structured schedule.

All the patients were informed consents. The aim and the objective of the present study were conveyed to them. Approval of the institutional ethical committee was taken prior to conduct of this study.

Following was the exclusion criteria for the present study.

Inclusion criteria: Mothers having children of age between 6 to 24 months.

Exclusion criteria: Infants with Low birth weight (< 2.5 kg), born out of multiple gestations pregnancy, born premature or those with significant congenital malformations and chronic illness were excluded.

Results & Discussion

The present study throws light on complementary feeding practices and their effect on nutritional status of infants. For optimal growth and development of children, complementary foods should be started at 6 months of age and the quantity and consistency gradually increased, as the child gets older, while maintaining frequent breast- feeding [4].

Table 1: The data from the 25 cases were collected and discussed as below.

Parameters	Number of ases	Percentage of Cases
Age of child		
6 – 12 months	7	28
13 – 18 months	6	24

19 – 24 months	12	48
Total	25	100
Sex		
Male	13	52
Female	12	48
Total	25	100
Mothers education		
Literate	15	60
Illiterate	10	40
Total	25	100
Mothers occupation		
Working	5	20
House wife	20	80
Total	25	100
Residence		
Urban	19	76
Rural	6	24
Total	25	100
Malnutrition		
Under eight	9	36
Stunted	8	32
Wasted	8	32
Total	25	100

Table 2: Age of Complementary feeding started and Malnutrition

Age of complementary feeding (months)	No. of children's	Weight for Age	Length for Age	Weight for Length
		Under weight	Stunted	Wasted
< 6	6	4	1	1
6	4	1	3	0
7 – 8	5	3	1	1
9 – 11	4	2	0	2
12 – 24	3	1	1	1
Not started	3	1	1	1
Total	25	12	7	6

In the present study, information regarding complementary feeding was received from health persons in mothers, which is very less. Majority of the mothers did complementary feeding by self or previous experience and others had information from family or friends. Literature and media played a very minimal role in educating mothers regarding proper complementary feeding practices. There are very few Indian studies, about source of information regarding complementary feeding.

The main reasons for delayed complementary feeding were, not knowing the time when to start complementary feeding, misconceptions, customs and false beliefs prevalent in the community. Anju Aggarwal *et al*. study in Delhi also states that, delayed complementary feeding practices are due to poor knowledge, customs and beliefs [5].

For the average healthy breastfed infant, meals of complementary foods should be provided two to three times per day at six to eight months of age and three to four times per day at nine to eleven months and twelve to twenty four months of age, with additional nutritious snacks (such as a piece of fruit or bread or chapatti with nut paste) offered one to two times per day, as desired.

Time and again, the need for timely introduction of complementary feeds has been demonstrated, still many mothers initiate complementary foods early or later than what is recommended. Also the study demonstrates that, complementary foods fed to many infants are both inappropriate (less energy dense) and inadequate.

The growth and nutritional outcomes of children is dependent on a complex relationship between the intrinsic characteristics of the child and the competence of the mother in providing child care. Zeitlin *et al*. [6]. proposed that healthy, adaptable children may grow well and thrive even in the absence of good care, while extremely good care is required for the smallest and weakest children (low birth weight, those with poor appetites).

The impact of child care practices on child nutrition is demonstrated from a study in Accra. A composite child care index (for children 4 months or older) was created using traditional feeding practices, caregiverschild interaction and preventive health seeking behaviour as its main domains. It was observed that poor care was associated with significantly higher prevalence of stunted and underweight children, while care index did not influence prevalence of wasting amongst children [7]. It was also observed that good care practices were more important for mothers with less education for better nutritional status of their children.

A study in India found that following nutrition education program for the mothers of under-five children resulted in improvement of the nutritional status of their children; the proportion of children who were moderately underweight decreased from 35.4% to 2.5% after 2 months of nutrition education program [8].

A study from South Africa found that the involvement of "Mentor Mothers" in health and nutrition counselling to the mothers of malnourished under-five children resulted in weight gain in the intervention group which was significantly higher than in the control group in contrast to our study [9].

A systematic review evaluated two commonly applied

strategies as follows: provision of complementary feeding and health education to mothers on appropriate complementary feeding practices [10].

Infant-feeding practices could not influence nutritional status as assessed by weight-for-height index. Impact of infant-feeding practices on underweight and stunting but not on wasting can be explained by the fact that wasting describes a recent and severe process that led to significant weight loss as a consequence of acute starvation and/or severe disease whereas stunting implies long-term malnutrition and poor health, and underweight implies linear–growth retardation. Infant feeding practices have some long-term beneficial effects in improving the nutritional status of children. In case of low incidence of wasting in a community, underweight and stunting both reflect the long-term health and nutritional experience of the population [11].

Conclusion

The data generated from the present study and the reported literature concludes that Improvement in child care and feeding practices could positively impact nutritional status of children. These interventions need to be at the household level using positive deviance approach and behavioural change communication strategies. It may be necessary to invest in community level change agents to facilitate the process especially in an already overburdened health system.

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