

Satisfaction of mothers with supplementary nutritional services through Anganwadi centres in an urban area of Meerut, India

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ABSTRACT

Background: Undernutrition in children under 5 years of age is still a great public health burden. Integrated child development services (ICDS) were launched with an idea of making a dent on this age-old issue. Various studies in the past have been done to identify lacunae in the programme, but very few studies are done focussing on the satisfaction of mothers with the supplementary nutrition provided through ICDS programme. The utilisation of the programme depends on various factors, one of which is client satisfaction. **Methods and Material:** The Anganwadi centres of urban areas of Meerut were line-listed after taking a list of Anganwadis from the Child Development Office. There are 297 Anganwadis in urban areas of Meerut. With help of random number tables, three Anganwadis were selected, and to complete the sample of 152, 51 children from two Anganwadis and 50 from one Anganwadi centre were selected with help of simple random tables. The data thus collected were analysed using Epiinfo version 7.2.3.1. **Results:** The prevalence of underweight was found to be 34.2%, wasted 19.7%, and stunted 11.2%. Among the characteristics assessed, a majority of mothers, 58.5%, were dissatisfied with the frequency at which supplementary nutrition was provided from the Anganwadis. All children were provided Take Home Ration, and 100.0% of mothers reported using it for all family members. Still 63.2% of mothers were unaware about the iron supplementation in childhood and only 65.8% of mothers had satisfactory handwashing practices. **Conclusions:** In this study, a majority of mothers were dissatisfied with the frequency at which supplementary nutrition was provided to their children. Also, the prevalence of underweight children was significantly higher when mothers were not aware about the factors affecting nutrition in children. The Take Home Ration given for children was shared among family members in 100.0% families.

Keywords: Anganwadis, awareness, mothers, undernutrition

Introduction

Undernutrition is the cause of 45% of deaths in children under 5 years of age.^[1] It increases the risk of death in children^[2] by synergistically acting with infectious diseases like pneumonia, diarrhoea, and measles. With the idea of targeting undernutrition in children under 5 years of age, Integrated Child Development

Services (ICDS) was developed in 1975 by Government Of India (GOI).^[3] A core component of this programme is Supplementary Nutrition,^[4] under which 500 kcal/day is provided to children 6 months to 6 years of age. It has been more than 4 decades of this programme, but still, the burden of undernourished children in India is double that of Sub Saharan Africa.^[4] Studies done in the past found out that decreased utilisation of the services^[5] and improper implementation of the programme^[6] are two of the few causes for its poor outcome. But there are few studies done to check the satisfaction of mothers with the nutrition provided to their children at Anganwadi

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Received: 23-01-2024

Revised: 31-03-2024

Accepted: 02-04-2024

Published: 26-07-2024

Access this article online

Quick Response Code:



Website:
<http://journals.lww.com/JFMPC>

DOI:
10.4103/jfmprc.jfmprc_123_24

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How to cite this article: Pandey G, Chopra H, Bano T, Jain S, Singh G. Satisfaction of mothers with supplementary nutritional services through Anganwadi centres in an urban area of Meerut, India. J Family Med Prim Care 2024;13:3282-6.

centres. As mothers are the primary contact for children, their satisfaction and feedback are important for the success of a programme focussed on child health. Therefore, the present study was planned to find feedback of mothers and lacunae in implementation of the programme beyond the boundaries of an Anganwadi centre which may further help in improvising of the current programme.

Aims and Objectives

1. To assess the satisfaction of mothers with the supplementary nutrition provided through Anganwadi centres in an urban area of Meerut.
2. To assess the knowledge of mothers about various factors that affect the nutrition in children in an urban area of Meerut.

Subjects and Methods

Calculation of sample size

Taking the prevalence of undernutrition in Meerut as 33.1%^[7] and the absolute precision as 7.5% at 95% confidence interval, the sample size for the study is calculated as follows:

$$n = (1.96 \times 1.96) P (1-p)/d^2$$

$$= 3.84 \times 0.331 \times (1-0.331)/(0.075)^2 = 152$$

Settings and Design: Anganwadi centres

Sampling method

Simple Random Sampling

After the ethical clearance from the Institute Ethic Committee [No./SC-1/2021/], all the Anganwadi centres of the urban area of Meerut were line-listed after taking a list of Anganwadis from the Child Development Office. There are 297 Anganwadis in the urban area of Meerut. With help of random number tables, three Anganwadis were selected, and to complete the sample of 152, 51 children from two Anganwadis and 50 from one Anganwadi centre were selected with help of simple random tables. A detailed interview with the mother of the child and anthropometric examination of the child was done at the home of the selected child by the author. If the selected children according to the random number table were not present or the family did not give verbal assent or the child was sick, then the child who was next in the random selection was taken till the entire sample size was covered.

The data thus collected were entered in epiinfo. 7.2.3.1, from which distribution and association tables were prepared and analysed.

The study was conducted from 1 November 2020 to 20th August 2021.

Operational Definitions

1. Adequate diarrhoea management in children: When the mother continued breastfeeding during an episode of diarrhoea and started ORS and zinc therapy.
2. Awareness about growth monitoring was taken as adequate/aware when the mother knew that the child's weight and height are measured each month at Anganwadi centres and during immunisation sessions.
3. Iron supplementation in childhood: The mother was regarded as aware about iron supplementation in childhood if she knew that iron prophylaxis in children should start at 6 months of age.
4. Personal hygiene of mother: The mother's personal hygiene was considered satisfactory if she washed her hands with soap and water every time after defecation/micturition and before handling food.

Results

The prevalence of undernutrition in children is as shown in Figure 1.

Table 1 shows the sociodemographic characteristics of the study population. A majority of children were of 0–3 years of age (57.2%), were female (52.6%), belonged to a high standard of living index (SLI) (55.9%), were Hindus (84.2%), and were living in a nuclear (42.1%) type of family, and their mothers were educated up to high school or intermediate level (51.9%).

During the study period, 100.0% children got Take Home Ration, which constituted wheat (2 kg), Chana daal (750 g), milk powder (750 g), and ghee (450 g) in the month of March. Then again in the month of March, 2 kg wheat was distributed. In the month of June, mustard oil (1 l) and chana dal (2 kg) were given. In the month of July, 1 kg chana daal was given, and in August, 2 kg chana daal, 1 l mustard oil, and 2 kg of daliya were given. Nothing was distributed in the months of April and May. Also, 100.0% of mothers reported that the food was shared with family members.

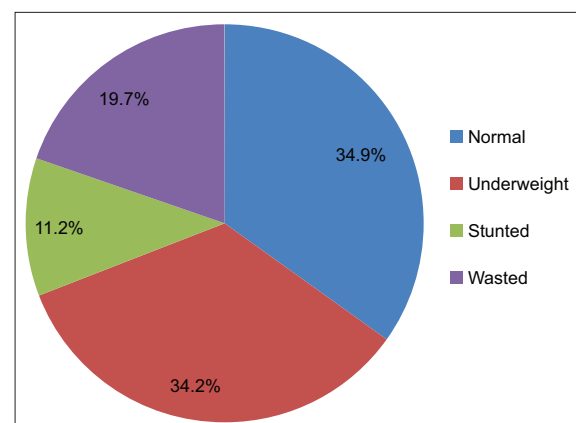


Figure 1: prevalence of undernutrition in children under study

Table 2 shows the satisfaction of mothers regarding the supplementary nutrition on Likert scale. Among all the characteristics asked, a majority of mothers were dissatisfied with the frequency (58.5%) at which supplementary nutrition was provided and the amount (43.4%) of supplementary nutrition was provided for children.

Table 3 shows awareness of mothers regarding various factors that affect nutrition of children and their association with prevalence of underweight in children. As underweight in children is a composite indicator of both chronic and acute undernutrition, only its association was seen. Prevalence of underweight children was statistically higher when the mother was unaware about diarrhoea management in the child, when she was not aware about monthly growth monitoring, starting iron supplementation in childhood, and when her personal hygiene was not satisfactory.

Table 1: Sociodemographic characteristic of the study population

	Frequency	Percentage (%)
Age groups (years)		
0-3	87	57.2
3-6	65	42.8
Total	152	100.0
Sex		
Male	72	47.4
Female	80	52.6
Total	152	100.0
SLI		
Low	36	23.7
Middle	31	20.4
High	85	55.9
Total	152	100.0
Type of family		
Joint	42	27.6
Nuclear	64	42.1
3 generation	46	30.3
Total	152	100.0
Religion		
Hindu	128	84.2
Muslim	24	15.8
Total	152	100.0
Education of mother		
Up to primary/secondary	19	12.5
High school and intermediate	79	51.9
Graduate	54	35.6
Total	152	100.0

Discussion

The present study was conducted in the Anganwadis situated in the urban area of Meerut. A total of 152 children (0–6 years) were covered by house-to-house visit. In the present study, the overall prevalence of undernutrition among children of 0–6 years of age was assessed in terms of underweight 34.2%, stunted 11.2%, and wasted 19.2%. The findings of the study for underweight and wasted were consistent with Subramanian *et al.* (2018)^[7] and NFHS-5,^[8] which reported a prevalence of 33.1% of underweight and 17.7% of wasted; 29.1% of underweight and 20.0% of wasted, respectively. The prevalence of stunting reported in this study was similar to that observed by Malik *et al.* (2018),^[9] who reported prevalence of stunted children in Delhi as 19.0%.

It was observed in the last 6 months follow-up that Take Home Ration was provided as supplementary nutrition to 100.0% beneficiaries, which constituted wheat (2 kg), Chana daal (750 g), milk powder (750 g), and ghee (450 g) in the month of March. Then again in the month of March, 2 kg wheat was distributed. In the month of June, mustard oil (1 l) and chana dal (2 kgs) were given. In the month of July, 1 kg chana daal was given, and in August, 2 kg chana daal, 1 l mustard oil, and 2 kg of daliya were given. Nothing was distributed in the months of April and May. Also, 100.0% of children shared food with family members and 100.0% reported that supplementary nutrition was irregular in frequency. We could not find any study reporting take home rations being given to all children irrespective of age. In this study, 58.5% of mothers were dissatisfied with the frequency at which supplementary nutrition was provided and 100.0% of mothers reported that it was irregular in frequency. In a similar study by Mundodan *et al.* (2016),^[10] it was reported that 65.13% of mothers of children 7 months to 3 years felt that the supplementary nutrition was provided regularly, 32.89% felt that it was not very regular, and 1.97% responded that it was irregular, while in children 3–6 years, 56.85% responded that supplementary nutrition was provided regularly, 41.78% responded it was not very regular, and 1.37% responded it was not regular. This difference in the results could be attributed to the fact that both studies were done at different states of the country.

The current study noted that 82.9% of mothers were aware of diarrhea management in children as compared to 17.1% who were unaware about it. The prevalence of underweight children was more, 100.0%, when mothers were unaware about ORS and continued feeding during diarrhea, while 20.6% when mothers were aware about it. Various epidemiological

Table 2: Satisfaction of mothers regarding the supplementary nutrition on Likert scale

Characteristics	Very satisfied 5 Frequency (%)	Satisfied 4 Frequency (%)	Neutral 3 Frequency (%)	Dissatisfied 2 Frequency (%)	Very dissatisfied 1 Frequency (%)	Total (%)
Amount	2 (1.3)	74 (48.7)	2 (1.3)	66 (43.4)	8 (5.3)	152 (100.0)
Quality	15 (9.9)	128 (84.2)	1 (0.7)	7 (4.6)	1 (0.7)	152 (100.0)
Frequency	1 (0.7)	27 (17.8)	1 (0.7)	89 (58.5)	34 (22.4)	152 (100.0)
Variety	14 (9.2)	105 (69.1)	28 (18.4)	5 (3.3)	0 (0.0)	152 (100.0)
Value of nutrition in health of child	13 (8.5)	109 (71.7)	2 (1.3)	25 (16.4)	3 (1.9)	152 (100.0)

Table 3: Distribution of underweight children according to knowledge of mothers about various practices that affect the nutritional status of children

	No. of children		Underweight		P
	Frequency	Percentage (%)	Frequency	Percentage (%)	
Awareness about diarrhea management in children					
Unaware	26	17.1	26	100.0	X ² =56.84, d.f=1, P<0.01, F.E=0.00
Aware	126	82.9	26	20.6	
Total	152	100.0	52	34.2	
Awareness about growth monitoring					
Aware	97	63.8	15	15.5	X ² =39.056, d.f=1, P<0.01
Not aware	55	36.2	37	67.8	
Total	152	100.0	52	34.2	
Awareness about iron supplementation in childhood					
Aware	56	36.8	2	3.6	X ² =34.23, d.f=1, P<0.01 , F.E=0.00
Unaware	96	63.2	50	52.1	
Total	152	100.0	52	34.2	
Mother's personal hygiene					
Satisfactory	100	65.8	5	5.0	X ² =107.05, d.f=1, P<0.01 , F.E=0.00
Not satisfactory	52	34.2	47	90.4	
Total	152	100.0	52	34.2	

studies have shown a marked negative relationship between diarrhea and physical growth and development of a child.^[11] In this study, a statistically significant relation was seen between awareness of mothers about growth monitoring in childhood and underweight. A study done in Ghana^[12] revealed no association between maternal knowledge about growth monitoring with prevalence of underweight. This difference can be attributed to difference in social determinants of health between two countries. In the current study, 63.2% mothers were unaware about iron supplementation in childhood and this unawareness in mothers was significantly associated with prevalence of underweight in children. Iron supplementation becomes important in childhood due to the fact that the child does not receive it through breast milk. Thorne *et al.*^[13] reported significant association between malnutrition in children aged 6–59 months of age and anemia in children. Iron deficiency in children leads to haemoglobin deficiency and thereby decreasing appetite further in an already undernourished child, thus precipitating the vicious cycle of undernutrition. In the present study, prevalence of underweight children was more among mothers with unsatisfactory handwashing and it was statistically significant. Similar results were reported by Ambadekar *et al.* (2016),^[14] who found out that children from Yavatmat, whose mother did not always wash hands with soap and water after defecation, were at greater odds, OR 3.4, of being malnourished as compared to those whose mother always washed hands with soap and water.

Conclusion

It can be concluded from the study findings that mothers of children receiving supplementary nutrition from Anganwadi centres were dissatisfied with the frequency and amount of it. Also, prevalence of underweight children was significantly higher when mothers were unaware about factors that affect nutritional

status of children. Therefore, it is recommended that primary care providers should counsel mothers regarding factors affecting nutrition every time they visit Anganwadis and clinics, even when they visit for some other health problem. Also, it was seen in study that the take home ration given for children through Anganwadis under Integrated Child development Scheme (services) was distributed among family members in all families, indicating the need for exploration of a new strategy of giving supplementary nutrition in order that only the child eats it.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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