Indian Journal of Public Health Research and Development
Volume 14 No. 2, April-June 2023

Nutritional Status and Anganwadi Services Utilization Among Under 5 Children in Aligarh: A Cross Sectional Study

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How to cite this article: Abdullah, UzmaEram, Ali Amir et. al. Nutritional Status and Anganwadi Services Utilization Among Under 5 Children in Aligarh: A Cross Sectional Study. Indian Journal of Public Health Research and Development 2023;14(2).

Abstract

Child health should be of prime concern. Their protection is the greatest investment for the country's economic and political stability. This cross sectional study was conducted at the Anganwadi centres under registered areas of the Department of Community Medicine, Jawaharlal Nehru Medical College Aligarh Muslim University, Aligarh. The study was conducted from July, 2017 to June 2018 among 400 children of age 3-6 years registered at the Anganwadi centres of field practice area. It was found that although the age group distribution among registered population was almost equal, majority of the children were found to suffer from stunting. along with this, children belonging to lower middle class socio economic status had the most registeration under ICDS scheme. The statistical association between underweight, stunting and socio-economic status was found to be statistically significant ($p<0.05$) while it was not associated with wasting ($p>0.05$). It can be understood that socio economic status also has role to play in access of these services. It is therefore necessary that people are made aware of ICDS program and motivated to reap benefits of the same for improved nutritional outcome of their children.

Key Words: anganwadi centres, nutritional status, children, malnourished, stunting, wasting

Introduction

The first six years of a child's life are the most crucial as the foundations for cognitive, social, emotional, physical, motor and psychological development are laid down at this stage[1]. Nutrition plays a key role in physical, mental and emotional development of children and much emphasis has been given to provide good nutrition to growing populations especially in the formative years of life.2 These growing children require constant supplementation of calories, proteins and micronutrients to keep pace with the increasing demands of the body. Since childhood is the most vulnerable phase in the life of a human being, nutritional inadequacies will result in the hampering of the development of the body. If this nutritional inadequacy is continued for a long period of time it results in the growth faltering manifested in the form of low weight, small height, low IQ[3]. The adverse effects of malnutrition are growth failure, breakdown of immunity, increased susceptibility

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to infections, prolongation of the recovery period, impairment of mental capacity and motor skills, decreased alertness and physical capacity.

The World Health Organization defines malnutrition as the cellular imbalance between the supply of nutrients and energy and the body's demand for them to ensure growth, maintenance and specific functions.[4] It is the syndrome that results from the interaction between poor diets and disease and leads to most of the anthropometric deficits observed among children in the world's less developed countries.[2]

To tackle the problem of malnutrition and provide integrated health services, the Government of India launched the Integrated Child Development Services (ICDS) in 1975.[2] ICDS has expanded over the years and is now one of the world's largest and unique outreach programmes to meet the holistic needs of a child. Over the years the programme has undergone transformations in terms of scope, content and implementation, but the primary goal of breaking the inter-generational cycle of malnutrition, reducing morbidity and mortality caused by nutritional deficiencies, reaching out to children, pregnant women, lactating mothers and adolescent girls has remains unaltered[5]

Aims and Objectives

The present study aims to assess the nutritional and development status of children aged between 3 to 6 years registered in Anganwadi centres of Aligarh under the registered area of the department. It will help delineate the effect ICDS has on children with regard to their nutritional status and their level of development. The objective of the study was to study the nutritional status of children in Anganwadi centres under registered areas of department of community medicine, Jawaharlal Nehru Medical College, Aligarh and to determine the association of nutritional status with socio-economic status.

Materials and Method

This cross sectional study was conducted at the Anganwadi centres under registered areas of the Department of Community Medicine, Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh from July 2017 to June 2018. Study population were the Children registered at the Anganwadi centres under registered areas of the department. Children belonging between the age group of 3 years to 6 years and the caregivers of whom consented to participate in the study were included in the study, while those children who were not registered at the Anganwadi centres, children with non-cooperative caregivers, children with any congenital disease or immune-compromised states were excluded from the study.

Sample size was calculated the following formula

$$n = z^2 \frac{p \times (1-p)}{d^2}$$

where, n = sample size

P = prevalence of underweight in Uttar Pradesh **[NFHS-3]** taken as **42.4%**[6]. d = allowable absolute error **(5%)** z = value of the standard normal variable at 0.05 level of significance **(1.96)**

$$n = (1.96)^2 \frac{424 \times (1-0.424)}{(0.05)^2}$$

Total sample size **(n)** was **375**.

Taking non response rate of 5%, the sample size comes out to be 393, which was rounded off to 400.

The data was collected through simple random sampling.

Ethical clearance was obtained from Institutional Ethics Committee, JNMC, AMU, Aligarh before conduction of the study. Date: 17-7-2017. Ref number: 651/FM. Informed verbal consent was taken from caregives before interview and they were assured of the confidentiality of the information and data collected. Appropriate health education and personalized counseling was provided to all the respondents and prompt referral was addressed to any patient found to be afflicted with serious malnutrition warranting specialist attention.

Operational De initions:

Malnutrition: It is defined as a weight-for-age below-2 Z-scores of the median of the WHO child

growth standards. It can be due to a low weight-for-height (wasting) or a low height for-age (stunting) or a combination of both.[7]

Underweight : Moderate - below minus two standard deviations from median weight for age of reference population; **severe** - below minus three standard deviations from median weight for age of reference population.[8]

Wasting Moderate - below minus two standard deviations from median weight for height of reference population; **severe**- below minus three standard deviations from median weight for height of reference population.[8]

Stunting Moderate - below minus two standard deviations from median height for age of reference population; **severe** - below minus three standard deviations from median height for age of reference population. [8]

Statistical Analysis

Z score for anthropometric measurements was calculated using WHO ANTHRO and WHO ANTHRO PLUS software[9,10], and compared with standard WHO reference charts. Descriptive summary using frequencies, proportions, graphs and cross tabs were used to present study results in SPSS 20.0. Probability (p) was calculated to test for statistical significance at the 5% level of significance. Association between variables was determined using Chi Square test.

Results and Discussion

As far as the age wise distribution of the study population is concerned, it came out to be almost equal with 48-59 months (34%), 60-71 months (34%) followed by age group 36-47 months (32%). The table also depicts that more than half (54%) of the study subjects were male and 45% were females. In the present study, it was observed that, mothers of 46.5% Anganwadi children were illiterate and 53.5% were literate. Of the literate, about 41.7% of the mothers had an educational level upto high school whereas only 11.8% of mother had education above high school. According to modified B.G. Prasad classification-2018 around half (50.0%) of the children belonged to households of Class IV socioeconomic class followed by Class V (27.3%) and Class III (13.4%) socioeconomic class while only 6% and 3.3% were belonged to households of Class II and Class I respectively. This shows that it's the poorer section of the society which is enrolled in ICDS.

Table 1: Social profile of the study population

Characteristics	Frequency (n)	Percentage (%)
Age group (in months)		
36 -47	128	32.0
48-59	136	34.0
60-71	136	34.0
Gender		
Male	216	54.0
Female	184	46.0
Mother's education		
Illiterate	186	46.5
Up to primary	67	16.7
Middle school	56	14.0
High school	44	11.0
Intermediate	31	7.8
Graduate and above	16	4.0
Father's education		
Illiterate	93	23.3
Up to primary	62	15.4
Middle school	89	22.3
High school	72	18.0
Intermediate	38	9.5
Graduate and above	46	11.5
Socio- economic status		
I	13	3.3
II	24	6.0
III	54	13.4
IV	200	50.0
V	109	27.3

Among the enrolled children in the present study there were 123 (30.6%) children with no altered nutritional parameter, while128 (32%) children were found to be underweight and stunting was reported in 146 (36.5%) out of 400.

Table 2: Nutritional Status of the Anganwadi children (N=400)

Nutritional Status	Frequency (N (%)		Total N (%)
	Present N (%)	Absent N (%)	
Normal	123(30.6)	277(69.4)	400(100)
Underweight	128 (32)	272(68.0)	400 (100)
Stunting	146 (36.5)	254(63.5)	400(100)
Wasting*	50 (18.9)	214(81.1)	264(100)

Overall immunization status of the registered children was observed to be good where 80.5% found to be fully immunized, and only 13.0% and 6.5% were reported to be partially and non immunized.

Table 3: Association of Nutritional Status with socio-economic status of the household

Socio-economic class	Underweight <-2SD			Stunting <-2SD			Wasting <-2SD		
	Present n (%)	Absent n (%)	Total N (%)	Present n (%)	Absent n (%)	Total N (%)	Present n (%)	Absent n (%)	Total N (%)
I	0 (0.0)	13 (100.0)	13 (100)	0 (0.0)	13 (100.0)	13 (100)	0 (0.0)	9 (100.0)	9 (100)
II	3 (12.5)	21 (87.5)	24 (100)	3 (12.5)	21 (87.5)	24 (100)	3 (23.1)	10 (76.9)	13 (100)
III	14 (25.9)	40 (74.1)	54 (100)	20 (37.0)	34 (63.0)	54 (100)	4 (12.1)	29 (87.9)	33 (100)
IV	71 (35.5)	129 (64.5)	200 (100)	74 (37.0)	126 (63.0)	200 (100)	28 (20.6)	108 (79.4)	136 (100)
V	40 (36.7)	69 (63.3)	109 (100)	49 (45.0)	60 (55.0)	109 (100)	15 (20.5)	58 (79.5)	73 (100)
Total	128 **(32.0)**	272 (68.0)	400 (100)	146 (36.5)	254 (63.5)	400 (100)	50 (18.9)	214 (81.1)	264 (100)
	P=0.009			P=0.002			P=0.461		

It can be understood that Socio-economic class exhibits a significant inverse association with underweight and stunting. Similar results were found in various studies conducted elsewhere. [11, 12, 13,14,15]

The possible reason for the poor nutritional status among those who are utilizing the services at Anganwadi center more could be, because families which have extreme dearth of resources, utilizing the services of Anganwadi centers more and families which have just enough, just don't bother about sending their kids to the center on a regular basis. Also, it can be argued that mothers might not send their children regularly to the centre because of recurrent infections that are common among the malnourished population which might affect the utilization of services of ICDS program. Along with this, another factor could be no information regarding this programme among the community, or lack of trust regarding the program being implemented at the ground level. In this case, it becomes imperative that the local bodies work actively to promote the

program and provide information regarding the benefits of the same to the eligible population.

Conclusion

There should be intensification of ICDS with multi sectorial strengthing, that can be achieved by help of ASHA, AWW, ANM and local village self help groups.[16] Education of women should be improved. Mothers should be counseled regarding exclusive breast feeding and proper complementary feeding which contribute to the nutritional and developmental status of children. Since majority of the study population was of low socio-economic status, efforts should be done to improve their Socio-Economic Status. Help of local NGO's and Self Help Groups may be involved for some ICDS activities like procurement and supply of supplementary nutrition. Emphasis on proper hand washing practice should be given at the centres before meals and the mothers of the children should also be counseled for the same to prevent recurrent infections and promote healthy eating habits.

Conflict of interest declared: None

Source of funding: self

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