

## Health and Nutritional Status of Integrated Child Development Service(ICDS) Beneficiaries Children in a Panchayat Area of Rural West Bengal

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### Abstract

**Background:** Integrated Child Development Service (ICDS) scheme is one of the most important programme in the field of child welfare with one of the objectives is to improve the nutrition and health status of children. There are strong nutrition components in this program in the form of supplementary nutrition, growth monitoring and regular health check-up.

**Objectives:** The objective was to assess health and nutritional status of ICDS beneficiaries children in a Narayanpur Bahirkhand gram panchayat in Haripal block of West Bengal.

**Materials and Methods:** It was a cross-sectional health & morbidity survey conducted in rural community setting. A pre-designed and pre-tested data collection form was used for collecting data by examining the children and interviewing the caregivers. Data was compiled and analysed in Excel workbook in computer. WHO reference curve of weight for age, height for age and weight for height were used as reference. Relevant rates & proportions were calculated, tabulated & pictorial presentation made; z-test and chi-square tests were used as statistical tests with  $p \leq 0.05$  as significance level.

**Result:** Mean age of 221 children under study was  $47.78 \pm 19.10$  months, 51.13% male, and 48.87% were female. 71.68% boys and 65.74% girls had normal weight for age; 23.89% boys and 28.70% girls were found severely undernourished. 82.30% boys and 68.52% girls had normal height for age and this difference was found significant statistically. 74.34% boys and 78.70% girls were found in normal weight for height zone. Regarding sign of micronutrient deficiency, 6.79% had pallor, 5.88% had angular stomatitis and cheilosis and 6.33% had glossitis. 9.95% had difficulty in distant vision and 9.50% had near vision problem, 5.88% had discharging ear, 25.34% with wax, 32.13% had running nose, 10.86% had red and swollen tonsil. Caries tooth was found among 22.17%; 2.71% cases of pediculosis found. 9.95% had dermatitis, 3.62% cases of scabies, 36.20% had long nails; among children with long nail, 66.25% had dirt under nails. 22.62% given history of expulsion of worms.

**Conclusion:** It is to conclude that, 28.32% boys and 34.26% girls were found with under-nutrition; 23.89% boys and 28.70% girls were found severely undernourished. Considerable number of children were found with nutritional deficiency symptoms and infections which can be managed through routine ICDS services or referring to the primary health care centres.

**Key words:** Health & Nutritional status, ICDS, Children, Rural West Bengal.

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Date of Submission: 19-05-2018

Date Of Acceptance: 11-06-2018

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### I. Introduction

Currently the most important programme in our country in the field of child welfare is Integrated Child Development Service (ICDS) scheme under Departments of Social Welfare. ICDS program was started in 1975 in pursuance of the National Policy for children. One objectives of ICDS is to improve the nutrition and health status of children. There is a strong nutrition component in this program in the form of supplementary nutrition. Beneficiaries are preschool children below 6 years, pregnant and lactating woman. All children get 500 calories and 12-15 gram protein, those who are severely malnourished get 800 calories and 20-25 gram protein. Health check-up, treatment of minor illnesses and growth monitoring of children are other important components.

The present study was conducted among beneficiaries of all the Anganwadi Centres in Narayanpur Bahirkhand gram panchayat of Haripal block of West Bengal, with the objective of assessment of Health and Nutrition status of 24-60 month children benefitted by the ICDS scheme.

## **II. Materials And Methods**

It was a community based descriptive health and morbidity survey, cross-sectional in design. The study was conducted in a panchayat area of Haripal block in Hooghly district of West Bengal, during April-May 2017. The objective was to assess health and nutritional status of ICDS beneficiaries children under study. All the children served by the ICDS centres of Narayanpur Bahirkhand gram panchayat area formed the population under study and all the children present in the ICDS centres on the time of data collection constitute the study subject. A pre-designed and pre-tested data collection form was used for collecting data by interviewing the caregivers of the child, usually mothers and clinical examining the children. For clinical assessment, spring balance, stadiometer, torch light and stethoscope were used. Study variables were socio-demographic characters like - age, gender of the child, education and occupation of parents, family income; for nutrition and health assessment - height, weight, vision, eye ear, nose, throat, hair, nails, tooth, mouth, skin, neurological examination and deformities.

Data was compiled and analysed in Excel workbook in computer. Relevant averages, rates & proportions were calculated; tabulation & pictorial presentation made; z-test and chi-square tests were used as statistical test with  $p \leq 0.05$  as significance level.

## **III. Result**

Total 221 children present in the all ICDS centres of Narayanpur Bahirkhand gram panchayat under Haripal Block of Hooghly district, formed the study subject. Mean age of the children was  $47.78 \pm 19.10$  months, range being 25 - 60 months; 113(51.13%) male, and 108(48.87%) were female. 218(98.64%) fathers and 213(96.38%) mothers were literate, with 140(63.35%) fathers and 116(52.49%) mothers were primary educated. (Diagram - 1) Occupation-wise among mothers, 201(90.95%) were homemaker, 13(5.88%) - labourer, 7(3.17%) - in service; among fathers, 89(40.27%) were labourers and 84(38.01%) - farmer, 24(10.86%) - in business, 10(4.52%) - in service and 14(6.33%) - self-employed like barber, goldsmith, hawker, mason, mechanical worker, weaver, private tutor, village doctors. Mean family income was Rs.  $3162.44 \pm 5723.48$ , with range Rs. 1000 to 16000.

For boys, mean height was  $99.79 \pm 15.92$  cms, range 81 - 117 cms and for girls average height was  $97.22 \pm 17.60$  cms, range being 73 - 114 cms. For boys, mean weight was  $14.08 \pm 4.26$  kgs, range 9.42 - 19.8 kgs and for girls average weight was  $13.29 \pm 4.70$  kgs, range being 9 - 19.4 cms. The difference in mean weight and height among boys and girls were found statistically significant ( $p < 0.05$ ).

To assess growth of the study subjects, WHO reference chart for weight for age, height for age and weight for height were used as reference. Among boys 81(71.68%) and girls 71(65.74%) had normal weight for age. The difference of weight for age among boys and girls was found statistically not significant ( $p > 0.05$ ). 27(23.89%) boys and 31(28.70%) girls were found severely undernourished. (Table 1)

Among boys 93(82.30%) and 74(68.52%) girls had normal height for age according to WHO reference chart and this difference was found significant statistically. ( $p < 0.05$ ) (Table 2) Regarding weight for height, 84(74.34%) boys and 85(78.70%) were found in normal zone. This difference was not found statistically significant. ( $p > 0.05$ ) (Table 3)

Among 221 children, 22(9.95%) had difficulty in distant vision and 21(9.50%) had difficulty in near vision of different grades. (Table 4) One boy(0.45%) was found with squint. No night blindness, dry conjunctiva, / cornea and corneal ulcer cases was found.

Among children, 13(5.88%) had discharging ear during examination, 2(0.90%) with old perforation, 56(25.34%) had wax in ear - 19(8.60%) in one ear, 33(14.93%) in both ear and 4(1.81%) had wax with pain. During examination, 71(32.13%) had running nose, 5(2.26%) with deviated nasal septum, 17(7.69%) had nasal polyp, 20(9.05%) with enlarged tonsil and 24(10.86%) had red and swollen tonsil.

Caries tooth was found among 49(22.17%) and missing teeth among 5(2.26%) children. Regarding care of hair, 79(35.75%) had uncombed hair, 4(1.81%) had saved scalp, 68(30.77) found with unclean hair and 6(2.71%) cases of pediculosis found.

Regarding sign of micronutrient deficiency, 15(6.79%) had pallor, 13(5.88%) had angular stomatitis and cheilosis and 14(6.33%) had glossitis.

22(9.95%) had dermatitis, 8(3.62%) cases of scabies, 12(5.43%) had boils and 3(1.36%) had dry skin. 56(25.34%) child had palpable neck glands. 80(36.20%) had long nails, among whom 53(66.25%) had dirt under nails.

50(22.62%) given history of worms expulsion in last 3 months. No children had auscultatory abnormality in heart but 7(3.17%) had crepitations and 1(0.45%) had ronchi in lungs. There were past history of bonny injuries like fracture limb bones, shoulders etc. seen among 9(4.07%) children. Easy fatigability was seen among 25(11.31%) children. No children were found with any abnormal neurological findings.

On searching for physical deformity, 2(0.90%) cases of Talipes both leg and 1(0.45%) prominent lateral condyle of humerus were found. Among other illnesses, 1(0.45%) each case of occasional fever, elbow dislocation, pain abdomen, pain left knee joint, pain right leg, phimosis and small urethral meatus found.

#### **IV. Discussion**

In the current study, mean age of 221 participant children was  $47.78 \pm 19.10$  months, 51.13% were male and 48.87% female. For boys, mean height was  $99.79 \pm 15.92$  cms and for girls it was  $97.22 \pm 17.60$  cms. For boys, mean weight was  $14.08 \pm 4.26$  kgs and for girls average weight was  $13.29 \pm 4.70$  kgs. The difference in mean weight and height among boys and girls were found statistically significant. 71.68% boys and 65.74% girls had normal weight for age; 23.89% boys and 28.70% girls were found severely undernourished. 82.30% boys and 68.52% girls had normal height for age. Regarding weight for height, 74.34% boys and 78.70% girls were found in normal zone. Regarding sign of micronutrient deficiency, 6.79% had pallor, 5.88% had angular stomatitis and cheilosis and 6.33% had glossitis.

In morbidity analysis, 9.95% had difficulty in distant vision and 9.50% had difficulty in near vision, 5.88% had discharging ear during examination, 0.90% with old perforation, 25.34% had wax, 32.13% had running nose, 2.26% had deviated nasal septum, 7.69% had nasal polyp, 9.05% with enlarged tonsil and 10.86% had red and swollen tonsil. Caries tooth was found among 22.17%, 30.77% found with unclean hair and 2.71% cases of pediculosis found. 9.95% had dermatitis, 3.62% cases of scabies, 5.43% had boils, 36.20% had long nails, among them 66.25% had dirt under nails. 22.62% given history of worms expulsion in last 3 months.

Study conducted by Mathur SM et al among rural children of Jaipur district found that 41.01% were suffering various grade of malnutrition which is a bit higher than the current study (28.32% in boys & 34.26% in girls). Vitamin B deficiency state was also higher among this study (18.97% vs. around 6% in the current study).<sup>[1]</sup> Study conducted by Sharma SK et al in Udaipur showed that, 10.3% male and 11.1% female children were stunted, whereas in the present study the figures were 17.70% and 31.48% respectively.<sup>[2]</sup> In study by Prasot RM et al in rural Lucknow, using Indian Academy of Paediatrics (IAP) reference the prevalence of protein energy malnutrition was much higher (54.8%) than the present study.<sup>[3]</sup> According to Yadav SS et al study in rural Haryana, 41.3% children were underweight which is higher than the present study and 14% were severe underweight which is lesser than the present study.<sup>[4]</sup>

Study on morbidity profile by Vyas S et al in a rural area of Dehradun showed worm Infestation (9.21%) which is lower than the current study (22.62%).<sup>[5]</sup>

Bhandari D et al in their study in semi-urban Gujarat reported the prevalence of under-weight was 43.67% and 50.3% children were found stunted which were higher than the current study.<sup>[6]</sup>

Some study were also found in urban ICDS project area like study of Patel PP et al in Jamnagar city slum ICDS project showed 50.2% children were malnourished according to IAP classification, 48.7% had stunting and 14.2% had wasting. Majority of children were having Pallor.<sup>[7]</sup> In an urban community based study in slum area of Kolkata conducted by Mondal K et al found that prevalence of malnutrition was 23.77% which is slightly lower than the current study (28.32% in boys and 34.26% in girls).<sup>[8]</sup>

Adhikari D in village of eastern part of Nepal found that Most of the morbid conditions founded in the study were related to skin diseases, ear infection, enlarged lymph node, Pneumonia, Diarrhoea/ vomiting, abdominal enlargement and malnutrition with different Grade.<sup>[9]</sup> Study by Chataut J et al in rural Nepal found 7.0% were wasted, 39.9% were stunted. In the present study, wasting is more and stunting is less than that study.<sup>[10]</sup> Bhadari TR et al in their study in Kapilavastu, Nepal showed that considering the weight-for-height, height-for-age, BMI-for-age and MUA-for-age, 5%-60% children were below -2Sd and nearly one-fourth below -3SD.<sup>[11]</sup>

Rahman A et al in Bangladesh showed that stunting, wasting and underweight were 44%, 10% and 47% (among them 18%, 1% and 13% were severely stunted, wasted and underweight) of the children respectively.<sup>[12]</sup> In the current study stunting and underweight are less and wasting is more than the Bangladesh study. Debnath SC et al conducted study in rural Bangladesh showed that about one-third (33.5%) of the children were stunted, while 23.3% were moderately wasted and 6.5% were severely wasted. Severely underweight was 8.6%, 20.6% were moderately underweight.<sup>[13]</sup>

Lodhi HS et al in Abbottabad in Pakistan showed that 80% children had normal height for age, 79% children were of normal weight, 17% children were wasted.<sup>[14]</sup> In the current study higher proportion of stunting, underweight and wasting were noted.

Not recording Mid Upper Arm Circumference (MUAC) is one limitation of the current study.

#### **V. Conclusion**

It is to conclude that, 28.32% boys and 34.26% girls were found with under-nutrition; 23.89% boys and 28.70% girls were found severely undernourished. Considerable number of children were found with nutritional deficiency symptoms like pallor, angular stomatitis, cheilosis, glossitis and caries teeth, acute infective illness

like discharging ear, running nose, swollen tonsils, pediculosis and worm expulsions and poor personal hygiene like long nails with dirt, unclean and uncombed hair. The problem of nutritional deficiency states and deficit of personal hygiene should be solved through routine ICDS services whereas for other illnesses beneficiaries should be referred to the nearest primary health care set up.

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### Tables & Diagram

**Table 1: Weight for age for both sexes.**

Sex	Green	Yellow	Red	Total
Male	81(71.68)	5(4.42)	27(23.89)	113(51.13)
Female	71(65.74)	6(5.56)	31(28.70)	108(48.87)
Total	152(68.78)	11(4.98)	58(26.24)	221(100.00)

**Table 2: Height for age for both sexes.**

Sex	>3SD	2 to 3SD	0 to 2 SD	-2 to 0 SD	-3 to -2 SD	<-3 SD	Total
Male	--	2(1.77)	24(21.24)	67(59.29)	11(9.73)	9(7.96)	113(51.13)
Female	2(1.85)	2(1.85)	15(13.89)	55(50.93)	28(25.93)	6(5.56)	108(48.87)
Total	2(0.90)	4(1.81)	39(17.65)	122(55.20)	39(17.65)	15(6.79)	221(100.00)

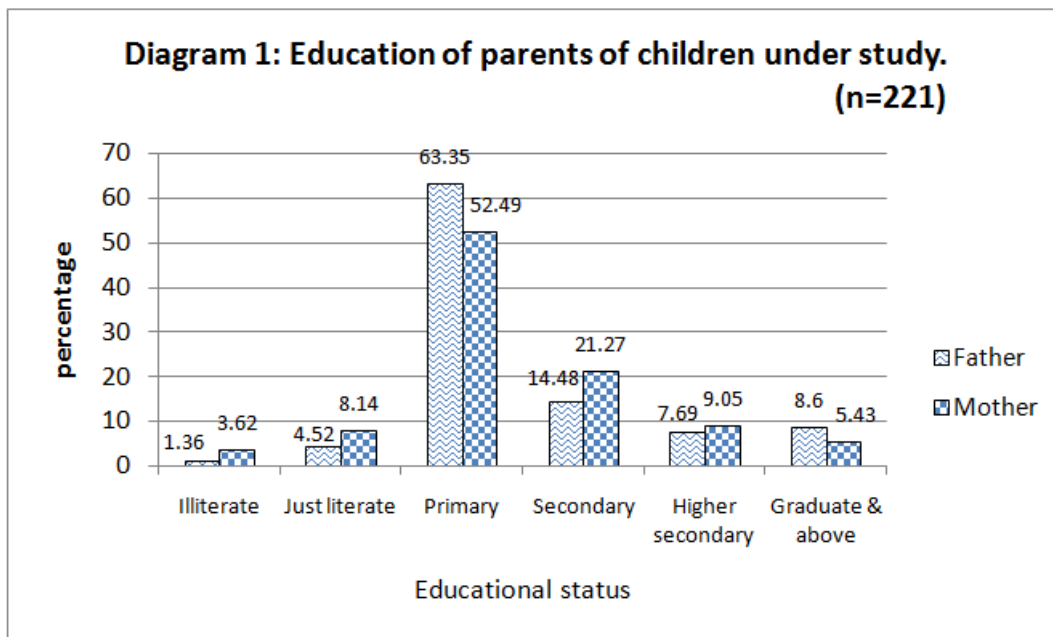
**Table 3: weight for height for both sexes.**

Sex	2 to 3 SD	1 to 2 SD	0 to 1 SD	0 to -1SD	-1 to -2SD	-2 to -3 SD	<-3SD	Total
Male	1(0.88)	3(2.65)	13(11.50)	21(18.58)	46(40.71)	25(22.12)	4(3.54)	113(51.13)
Female	3(2.78)	3(2.78)	10(9.26)	26(24.07)	43(39.81)	16(14.81)	7(6.48)	108(48.87)
Total	4(1.81)	6(2.71)	23(10.41)	47(21.27)	89(40.27)	41(18.55)	11(4.98)	221(100.00)

**Table 4. Vision of children under study. (n=221)**

Vision	Right eyeNo.(%)	Left eyeNo.(%)
<b>Distant vision</b>		
Normal	199(90.05)	199(90.05)
6/9	8(3.62)	8(3.62)
6/12	1(0.45)	1(0.45)
6/18	4(1.81)	4(1.81)
6/24	3(1.36)	3(1.36)
6/60	6(2.71)	6(2.71)
Total	221(100.00)	221(100.00)
<b>Near vision</b>		
Normal	200(90.50)	200(90.50)
N/8	8(3.62)	8(3.62)
N/10	2(0.90)	2(0.90)
N/12	7(3.17)	7(3.17)

N/18	3(1.36)	3(1.36)
N/36	1(0.45)	1(0.45)
Total	221(100.00)	221(100.00)



Dr. Tarun Kumar Sarkar "Health and Nutritional Status of Integrated Child Development Service (ICDS) Beneficiaries Children in a Panchayat Area of Rural West Bengal." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 6, 2018, pp 32-36.