

Assessment of Utilization of ICDS scheme and Impact on nutritional status of beneficiaries in RHTC area under Government Medical College Kota (Rajasthan)

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Abstract

Background: Under-nutrition is one of the major problem which leads to developmental delays as well as poor health requiring frequent visits to health care center in early child hood in India. The aim of this study was to conduct assessment of utilization of ICDS program and its impact on under-nourished children attending anganwadi center (AWC).

Methods: This was a record and interview based analytical study conducted in RHTC area under Government Medical College of Kota district. Total 380 records of beneficiary children registered under the ICDS scheme were observed for present day assessment of these beneficiaries followed by SPSS mediated analysis.

Results: A higher weight gain was seen in children of literate mothers. Regular attendance in anganwadi was seen in eighty five percent of children, however 19 % of children dropped out for more than 1 month. In a period of one year, it was observed that in growth had faltered in 2.6% children and was stagnant in 71.5% of them.

Conclusions: Focus on taking regular follow up by the AWWs should be encouraged so that continuity in attendance and maximum utilisation of services by the eligible and registered beneficiaries under the scheme is ensured. This might prove to be an important step in preventing shifting of children towards red category.

Keywords: ICDS, Anganwadi center, supplementary nutrition, follow-up, nutritional assessment, under-nourished children.

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Introduction

India contributes about forty percent of severely under nourished in under five age group.[1,2,3] The cardinal reasons contributing to under nutrition are inapt access to food, inadequate health services and unhygienic environment.[4] Without proper attention and care it can precede severe acute malnutrition.

More than 33% of deaths in 0-5 years are associated with malnutrition.[5] Undernutrition involving major deficiencies in calories, protein, vitamin A, iron folic and iodine presents one of the most important public problems in the developing countries of the world the persons affected are mostly preschool children, pregnant women and lactating mothers.[6]

When in the year 1975, the ICDS scheme was launched, it manifested as a unique step towards country's commitment in improving its children and nursing mother's health status. It was launched in a response to the challenges and difficulties the nation faces in providing pre-school, non-formal education and supplement nutrition which may lead to reduced learning capacity of children on one hand and morbidity and mortality due to malnutrition on the other.

The beneficiaries under the Scheme are children in the age group of 0-6 years, adolescent girls, pregnant women and lactating mothers.[7]

Rajasthan state government in the year 2008, took an initiative to set up malnutrition treatment centers in district hospitals offering treatment based on guidelines laid down by the World health organization.

Perseverance of childhood under nutrition in India inspite of the economic upsurge and industrial development is an intricate public health puzzle that keeps confronting the analysts,

program managers and implementers in a sizable magnitude. An unpretentious fall off in undernutrition status in the previous two rounds of the National Family Health Survey (NFHS) is prominent in India but continues to lag behind the Sustainable Development Goal (SDG-2) target 2.1, 2.2 [8,9]

Since the ICDS project serves mainly to cater the nutritional needs of the rural population specifically the children there is much needed action to be taken in early life for their overall development but it still lags behind as we have come way far in terms of India thriving towards being a developed country.

Material and Methods

A record and interview based analytical study was conducted in the RHTC area under Government Medical College, Kota (Rajasthan). A total of 380 records were taken. 20 AWCs was selected in RHTC area by applying a systematic random sampling technique. From each selected AWC, 19 mothers of registered beneficiaries (0-6 years) were randomly selected for interview. The data collected was entered and analysed using SPSS version 22.

Data collection tool

A structured questionnaire was prepared after literature review and departmental discussion. The questionnaire was designed to assess the growth status of the children. General information like age, sex, education status of parents as well as service utilization of AWC was assessed by personal interview of mothers. In case mother was not available, information was collected from any other available family member. Current growth status of child including current weight (kg) and mid upper arm circumference (MUAC) (cm) was also observed from the records. From the past records of growth chart plotting,

other information like weight and category before 1 year was also collected.

Results

In current study, from age wise growth chart records of beneficiaries in AWC, a total of 102 (26.8) children were found to be falling into red category and 278 (73.1%) were in yellow category before 1 year (February 2023). Observing the growth and weight status and categorizing of the same children after 1 year showed that 65 (17.1%) were in green category, 236 (62.1%) were in yellow category and 79 (20.7%) were in red category. It was observed that 98 (25.7%) of the 380 children had shown improvement in their growth in 1 year, while 272 (71.5%) and 10 (2.6%) of the children had shown stagnancy and faltering in their growth respectively. Mean weight gain in 1 year for all children in yellow category was 1.6 (+/-1.1 SD) and in red category it was 1.8 (+/- 1.4 SD) kg. There was no statistically significant difference between past and current weight in both yellow and red category children ($P = 0.44$) [Table 1].

As per the observed records MUAC measurement was used for categorizing the nutritional status of the children, by which 73 (13.9%) of the children were severely under-nourished (MUAC < 12.5 cm), 242 (45.7%) were mild and moderately under-nourished (MUAC = 12.5-13.5 cm) and 214 (40.4%) were in normal grade (MUAC > 13.5 cm).

Out of total 380 under-nourished children, 203 (53.4%) were male and 177 (46.5%) were female. Gender-wise no difference in terms of mean weight gain in 1 year was seen between the two ($P = 1$). Furthermore, in the study, 142 (37.3%) children were in one to 3 years and 238 (62.6%) in 3 to 6 years age group with mean weight gain in younger children higher than older children [$P = 0.03$, Table 1]. Around 78 (20.5%)

fathers and 96 (25.2%) mothers of under-nourished children were illiterate with mean weight gain of children of illiterate mother being lower than literate mothers ($P = 0.001$), though no such difference was seen with education level of fathers ($P = 0.15$) [Table 1].

*Three color coded categories are given in the growth charts (based on World Health Organization growth standards for weight for age for boys and girls) maintained at the anganwadis: Green for normal, yellow for under-weight (-2 SD to -3 SD) and red for severely under-weight (< -3 SD) child, **Independent sample *t*-test applied, SD = Standard Deviation.

Majority i.e. 324 (85.2%) of 380 under-nourished children had regular attendance in AWC and only 56 (14.7%) children had irregular visits (absence in last 2 weeks). The major reasons for irregular visits given by mothers can be seen from Figure 1.

On checking for drop outs (weighing not carried out for 1 month or more in last year as seen from growth chart registers), 79 (20.7%) of children had drop-outs. Major reasons for drop-out were family being out of station as stated by 39.2% mothers, busy on household chores given by 26.7%, consistently ill child given by 14.2% mothers, far away location of AWC from home as given by 8.9% mothers, no one to accompany child to AWC was given by 7.1% mothers and irregular running of AWC as stated by 3.5% mothers.

Majority of the 340 (89.4%) children were eating supplementary meals given from AWC. As seen from Table 2, mean weight gain was found to be associated with number of drop outs ($P = 0.001$), child eating supplementary feed ($P = 0.001$), but mean weight gain was not found associated with irregular and regular visits to AWC ($P = 0.5$).

Table 1: Association of demographic profile of under nourished children with weight gain(n=380)

Variables(n)	Mean weight gain in one year(kg)	+/- SD(kg)	P value**
*Growth category of child before one year Yellow (278) Red (102)	1.6 1.8	1.1 1.4	0.12 (not significant)
Gender Male (203) Female(177)	1.7 1.7	1.2 1.1	1 (not significant)
Age 12-36 months (142) 37-60 months (238)	1.9 1.6	1.5 1.2	0.03(significant)
Education of mother Illiterate (96) Literate (284)	1.4 2.0	0.9 1.3	0.001(significant)
Education of father Illiterate (78) Literate (302)	1.6 1.8	1.1 1.2	0.15 (not significant)

Table 2: Association of ICDS services utilization indicators by the beneficiary children with weight gain (n=380)

Variables (n)	Mean weight gain in one year (kg)	+/- SD (kg)	P value
AWC visit by child. Regular (324) Irregular (56)	1.8 1.7	1.4 1.3	0.5(not significant)
Dropout of one month or more from AWC Yes (79) No (301)	1.4 1.9	1.3 1.2	0.001 (significant)
Child eating supplementary feeding Yes (340) No (40)	1.8 1.3	1.1 0.9	0.001 (significant)

ICDS= Integrated Child Development Services, AWC = Anganwadi Centers, SD= Standard Deviation

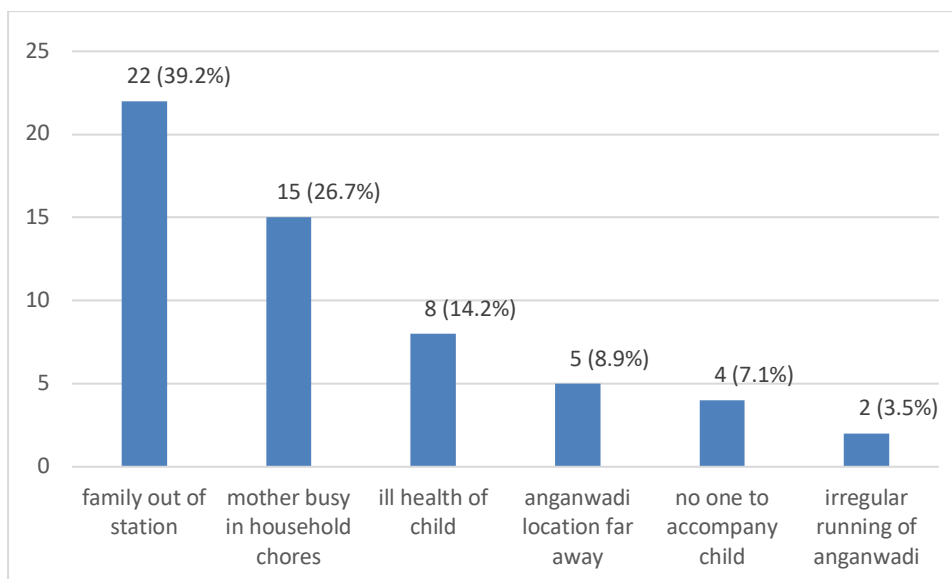


Figure 1: Reasons for irregular visits to anganwadi center (n=56)

Discussion

The impact and utilization of ICDS services mostly depend on the implementation and provisions for continuous supply chain in terms of man power, quality supplementary nutrition and other programmatic indices. Any disruption in these will substantially affect the approach the government intent to put in to curb the under-nutrition among beneficiaries of ICDS scheme. Though other factors viz. reasons from beneficiary side also play a crucial role to some extent. The actual impact of ICDS program on nutrition status of children remains still in question as previous studies have shown which may be due to problem in implementation of the program objectives in terms of training, supervision and support, inconsistent supplies and quality of food supplement.[10,11] In current scenario the government efforts in reaching out to the beneficiaries has improved and there is a decrease in proportion of undernourished children in terms of stunting and wasting in the state of Rajasthan, maintaining the chain of demand and supply still remains a challenge. Lack of facilities at the AWCs, knowledge gap among AWWs and regular training and supervision shows program disparity in coverage of supplementary nutrition in children.

The NFHS-5 data have shown government's commitment to bring about the accomplishment of ICDS program's objectives. Under 5 mortality ratio has gone down to 38.8 from 54 per 1000 live births. In the age group 6-23 months the proportion of receiving an adequate diet has increased from 3.3% to 8%. The proportion of children stunted (height for age) has dropped down from 40.8% to 32.6%. The proportion of children wasted (weight for height) has gone down from 23.4 % to 16.4%. The Children under 5 years who are under weight (weight for age) has gone down from 38.4% to 28.1%. [12] The role of community interaction, public awareness campaigns and health education contributes to a great extent in successful implementation of any program, its role in ICDS program in benefaction towards boosting the ability of the mother and the family to take care of the health and nutrition needs, still remains in low spirit.[13-15]

In an observation made in the current study it was seen that the proportion of illiteracy was one fourth among mothers of undernourished children with mean weight gain of these children lesser than their peers. Another national level survey has shown the share of under-weight boys amongst mothers with no education of 54%,

compared with 32% among mothers with secondary or higher levels of education.[11] An ICDS study from Rohtak have also reported significant association between under-weight and maternal education of primary or less ($P < 0.001$).[15]

In another observation it was seen that, there was no association found between father's literacy level and mean weight gain among beneficiary children under ICDS. This could be explained by the fact that in traditional Indian family the mother is responsible exclusively for raising the child and doing household chores while the father remains busy in outdoor activities. Second point is that in present study there was more representation found of male children in contrast to girl children among under-nourished children with no significant difference established in mean weight gain in 1 year; as Kumar *et al.* as well as Bhalani and Kotecha. had found the condition unfavourable to girls due to societal and cultural propagated gender discrimination.[16,17] Mean weight gain was also found to be higher for younger children, which could be explained by a physiological phenomenon leading to slow down of growth by increasing age. Under normal circumstances, in healthy children, weight increases by 7kg during first year, 2.5 kg during second year and 2 kg/year afterwards.[18]

Though, from all the records observed 85% of the children attended AWC regularly which indicates a pretty good utilization of services, 20.7% of the observed children reported to drop-out for more than 1 month during last 1 year and 14.7% had irregular visits which contributes as a barrier in utilization of the services provided under the program. Parents stated being out of station as a major reason for non-attendance.

In primary settings MUAC is widely used in field surveys to check for nutritional status of under-five children than other

indicators because of its workability and usability for AWWs. Also the appropriate cut off for MUAC to detect the nutritional status of under-five children varies among countries. One Zimbabwe based study using 15.5 cm as cut-off found to perform poorly in comparison to other standard indices for detecting under-nutrition.[19]

Conclusion

In the present study less mean weight gain was observed among children who were drop outs for one month or more as compared to their peers which depicts that focus on taking regular follow up by the AWWs should be encouraged so that continuity in attendance and maximum utilisation of services by the eligible and registered beneficiaries under the scheme is ensured. This might prove to be an important step in preventing re-slipping of children towards red category. Supplementary feed as provided under the ICDS scheme caters the challenge country faces in fighting problem of under nutrition, it's actual benefits in long run should be studied in detail with an ingenious alternative to country's under nutrition problem. Governments should also focus on improving the per capita income by providing employment opportunities in rural areas so that families don't need to move out of station which comes out to be as one of the major reason mentioned by 39.2% women for drop outs. Though other reasons contributing in less proportions such as anganwadi location far away from their home and irregular running of anganwadi should not be left unnoticed by the program managers.

References

1. New York: UNICEF; 2002. The United Nations Children's Fund (UNICEF). The state of the world's children 2003;123.
2. Gragnolati M, Shekar M, Das Gupta M, Bredenkamp C, Lee Y. Washington DC: The World Bank; 2005. India's

- undernourished children: A call for reform and action; p. 93.
3. Mumbai: IIPS; 2007. International Institute for Population Sciences (IIPS) and Macro International. National Family Health Survey (NFHS-3), 2005-06: India; 2007;1: 48.
 4. New Delhi: Ministry of Statistics and Programme Implementation, Government of India; 2011. Central Statistical Organization. Millennium Development Goals: India Country Report 2011; 57.
 5. Participant manual, national rural health mission, facility-based care of severe acute malnutrition
 6. B.N. Tandon: Nutritional interventions through primary health care: impact of the ICDS projects in india. Bulletin of the World Health Organization, 67 (1): 77-80 (1989)
 7. Ministry of Women and Child Development Government of India. Available from: <https://wcd.nic.in/sites/default/files/State%20RSOC.pdf>. [Last accessed on 2022 Oct 26].
 8. Deaton A, Drèze J. Food and Nutrition in India: facts and interpretations. Econ. Polit. Wkly. 2009;44:42–65. [Google Scholar]
 9. International Institute of Population studies (IIPS) National Family Health Survey (NFHS3), 2005–06: Mumbai, India. 2007.
 10. Ghosh S. Integrated Child Development Services Programme – Need for reappraisal. Indian Pediatr 1997;34:911-8.
 11. Improving child nutrition outcomes in India: Can the ICDS programme be more effective? World Bank Policy Research Working Paper 3647. Washington DC: Development research group, The World Bank; c2005.
 12. Ministry of Health & Family Welfare, Government of India, National Family Health Survey (NFHS-5, 2019-2021) Available from: <http://main.mohfw.gov.in>
 13. Bhasin SK, Bhatia V, Kumar P, Aggarwal OP. Long-term nutritional effects of ICDS. Indian J Pediatr 2001;68:211-6.
 14. Trivedi S, Chhapparwal BC, Thora S. Utilization of ICDS scheme in children one to six years of age in a rural block of central India. Indian Pediatr. 1995;32:47-50.
 15. Prinja S, Verma R, Lal S. Role of ICDS program in delivery of nutritional services and functional integration between anganwadi and health worker in north India. Internet J Nutr Wellness [Internet]. 2008;5(2):[about 5 p.]. Available from: <http://archive.ispub.com/journal/the-internet-journal-of-nutrition-and-wellness/volume-5-number-2/role-of-ICDS-program-in-delivery-of-nutritional-services-and-functional-integration-between-anganwadi-and-health-worker-in-north-india.html#sthash.Kk6zChvY>. dpbs.
 16. Kumar A, Kamath V, Kamath A, Rao C, Pattanshetty S, Sagir A. Nutritional status assessment of under-five beneficiaries of Integrated Child Development Services program in rural Karnataka. Australas Med J. 2010; 3:495-8.
 17. Bhalani KD, Kotecha PV. Nutritional status and gender differences in the children of less than 5 years of age attending ICDS Anganwadis in Vadodara city. Indian J Community Med. 2002; 27:124-9.
 18. Park K. Park's Textbook of Preventive & Social Medicine. 20th ed. Jabalpur: M/s Banarasidas Bhanot Publishers; 2009. p. 467.
 19. Siziya S, Matchaba-Hove RB. Comparison of arm circumference against standard anthropometric indices using data from a high density town near Harare, Zimbabwe. Cent Afr J Med. 1994; 40:250-4.