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ROLE OF AWARENESS GENERATION IN REDUCTION OF MALNOURISHMENT AMONG CHILDREN

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ABSTRACT

Malnutrition is a state that results from intake of diet in which nutrients are either not enough or are too much such that the diet causes health problems. Nutrients may involve calories, protein, carbohydrates, vitamins or minerals. The prevalence of malnutrition is an important indicator of a country's health. Keeping this in mind government of India has launched ICDS schemes to increase the awareness among women and their family members. Growth and development are affected by both genetic and environmental factors. The growth in the postnatal period is affected by lack of awareness, lack of nutrition, socio-economic level, natural resources, climate, emotional and cultural factors. Among these factors awareness is very important. In most societies, mothers are the primary providers of nutrition and care to young children. This is a demanding task, and lack of awareness leads to poor physical or mental health in mothers expected to have adverse consequences on their children's health, nutrition and psychological well-being. The main objective of these services is to improve the health status of the country. The awareness campaign run by these centers have given positive response that has been reflected in this research. The present study was conducted among the children of Alamnagar and Aliganj area of Lucknow. Anthropometric measurements were used for the assessment of health of children belonging to age group 3 years to 6 years. FGDs were conducted to check the awareness of mothers regarding health of children. Children were divided into age groups on the basis of decimal age. A comparison of sample data with control data showed that ICDS (N=388) children are better than non-ICDS (N=438) in respect of anthropometric measurements. It shows increased awareness of mothers related to ICDS centers. These children showed better response of health due to awareness campaign of ICDS centers. Focus group discussion (FGD) analysis conducted among ICDS mothers exhibited better knowledge of health related issues. Thus the health status of ICDS children was found to be better than non ICDS. Percentage of severely malnourished children was higher in non-ICDS than ICDS, i.e. 16.3% and 14.6% respectively. Percentage of underweight children in ICDS is 36.2% while in non-ICDS is 39.2%.

Keywords: ICDS-Integrated child development schemes, FGD-focus group discussion; malnutrition; awareness

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INTRODUCTION

"Malnutrition can be defined as a pathological state resulting from a relative or absolute deficiency or excess of one or more essential nutrients, which can manifest into over nutrition or under nutrition or an imbalance" (Murthy, 1995). Malnutrition can be hazardous to the physical, physiological, behavioral, mental and emotional well being of individual. A malnourished child will be below normal weight as compared to normal child. He will have low resistance and susceptibility for infectious diseases Desai and Mukherjee (1999). In broad-spectrum, in India, those who are poor are, at greater risk for under-nutrition, while those who have high socio-economic status are comparatively more likely to be over-nourished. When it comes to child malnutrition, children in low-income families are more malnourished than those in high-income families. Some cultural beliefs that may lead to malnutrition is religion. Children in the age group 0-6 years constitute around 158 million of the population of India (2011 census). These children are the future human resource of the country. Ministry of Women and Child Development is implementing various schemes for welfare, development and protection of children.

Launched on 2nd October, 1975, the Integrated Child Development Services (ICDS) scheme is one of the flagship programmes of the Government of India and represents one of the world's largest and unique programmes for early childhood care and development CTC (1985). It is the foremost symbol of country's commitment to its children and nursing mothers, as a response to the challenge of providing pre-school non-formal education on one hand and breaking the vicious cycle of malnutrition, morbidity, reduced learning capacity and mortality on the other. The beneficiaries under the scheme are children in the age group of 0-6 years, pregnant women and lactating mothers. Objectives of the scheme are to improve the nutritional and health status of children in the age-group 0-6 years; to lay the foundation for proper psychological, physical and social development of the child; to reduce the incidence of mortality, morbidity, malnutrition and school dropout and to achieve effective co-ordination of policy and implementation amongst the various departments to promote child development; and to enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

Various studies have shown that health status of ICDS children is much better that the children belonging to those families who have not taken any benefits run by the government particularly in their area, because ICDS centers are providing facilities to ensure benefits so as to provide better and sustainable environmental conditions necessary for mental, physical and social development of the child; to enhance mother's capability to look after the health and nutritional needs of the child through nutrition and health education; to achieve effective coordination during the policy formulation and its implementation among government departments for better promotion of child development (Ghosh, 1989).

Community based "Aganwadi Centres" (AWC) provide package of services for achieving the above objectives. These include heath checkups, immunization,

referral services supplementary nutrition, non-formal education (3-6 years) and nutrition and health education. In view of the limited number of studies on the assessment of malnourishment among children belonging to 3-6 years and realizing the urgency for timely interventions to mothers and children, this paper analyzes the current nutritional situation of children from Alamnagar and Aliganj area of Lucknow in Uttar Pradesh and examines the impact of nutrition-related services and awareness programs. ICDS centers were selected for knowing the health status of children with the help of relevant anthropometric measurements that are necessary for the assessment of awareness of family regarding health of children. It was considered desirable to undertake the present investigation to assess awareness regarding nutritional requirement of children three to six years of age belonging to ICDS centers. This is also an attempt to find out if children of ICDS are better than the non-ICDS children regarding their health and to know the overall impact of the ICDS scheme, ensuring a better physical growth, development, mental health and nutritional status of children. The findings will consider if the schemes needs to be strengthened or completely withdrawn.

METHODOLOGY

The present investigation was undertaken with the objective to assess, if children of ICDS centers are better in terms of their nutritional status and physical growth and development. The present study was conducted among the children ICDS=388 and Non ICDS=438 of Alamnagar and Aliganj area of Lucknow in Uttar Pradesh. Five anthropometric measurements (height, weight, upper-arm circumference head circumference, and chest circumference) were used for the assessment of health of children belonging to age group 3 years to 6 years using standard techniques after Weiner and Lourie, (1981). FGDs were conducted to check the awareness of mothers regarding health of children. The ages of the children were obtained in decimal age by subtracting the date of birth, from the date of investigation using decimal age calendar. After getting, the decimal age children were dividing into seven age groups (Table 1) Focus group discussion—FGDs were conducted to know the awareness of mothers regarding health of children. These were conducted in both city project area to find out if the present practices related to health existed or not.

RESULTS

Good health benefits not only the individual, but the nation as well. In many countries across the globe, the path to quality health for large proportions of their population is made with difficulties. In poor economies, people suffer from various health-related problems. Though efforts are being made by State and central governments through various schemes related to health problems, many countries continue to lag in meeting their goals and targets. In the present investigation following results have been found with respect to anthropometric measurements.

Weight

The mean weight of male ICDS children ranges from 11.71 kg to 16.48 kg in comparison to non- ICDS male children where it ranges from 11.13 kg to 14.81 kg reflected slight difference between both groups. The mean weight of ICDS female children ranges from 10.85 kg to 15.68 kg and that of non ICDS female children from 10.83 kg to 14.68 kg (Table 2). Significant differences between ICDS and non ICDS male children were observed at four and seven age group.

Height

The mean height of male ICDS children ranges from 86.50 cm to 106.96 cm in comparison to non-ICDS male children where it ranges from 83.78 cm to 100.14 cm. The mean height of ICDS female children ranges from 85.02 cm to 105.90 cm and that of non ICDS female children ranges from 82.36 cm to 101.71 cm. Significant differences can be noted between ICDS and non ICDS males at four, five and seven year age groups and for females at three and seven year age group. (Table 3)

Upper Arm Circumference

The mean arm circumference of ICDS males ranges from 13.43 cm to 14.12 cm as compared to non ICDS males where the value ranges from 12.91 cm to 13.29 cm. The mean arm circumference of ICDS females ranges from 12.84 cm to 14.20 cm in comparison to non ICDS females where it ranges from 13.23cm to 14.17 cm. No significant difference can be observed between ICDS and Non ICDS male and female children. (Table 4).

Head Circumference

The mean head circumference of male ICDS children ranges from 47.01 cm to 48.74 cm in comparison to non ICDS male children ranges from 46.42 cm to 46.67 cm. The mean head circumference of female ICDS ranges from 45.60 cm to 48.19 cm in comparison to non ICDS female children where it ranges from 45.87 cm to 48.26 cm. A significant difference can be observed in age group four of female children. A highly significant difference can be observed in age group three of male children. (Table 5).

Chest Circumference

The mean chest circumference of male ICDS children ranges from 49.39 cm to 63.02 cm in comparison to non ICDS children ranges from 47.47 cm to 51.29 cm. The mean chest circumference among ICDS females ranges from 46.16 cm to 52.49 cm and that of non ICDS ranges from 46.67 cm to 60.05 cm. A significant difference can be observed in age group seven of females. (Table 6).

FGDs Result

FGD is the best tool to know the real picture of community. In present study 20 FGDs were conducted to know the awareness of mothers regarding the health of their children. It revealed following results.

Malnutrition- Food habits which have existed among a given racial group for centuries may be the reason for their reluctance to accept any suggested changes. Food plays an important role during social meetings both formal and informal. Food consumed by an individual should be wholesome and should fulfill the physiological, psychological and social needs of the human beings. Every individual requires an adequate supply of nutrients in suitable proportion for normal growth and development.

Sustainable environment-To provide better and sustainable environmental conditions necessary for mental, physical and social development of the child, mothers should be aware about the physical and mental health of children

Better look after- Almost all of the women indicated that ICDS centers were useful to enhance mother's capability to look after the health and nutritional needs of the child through nutrition and health education. They received health education from ICDS centers.

Health checkup-Most of the women told that they were aware about health checkup of themselves and their children too. They got information regarding health checkup through ICDS centers.

Immunization-The result of FGDs shows that the mothers of children were aware about the timely vaccination of their children and they were getting it done.

Supplementary nutrition-Most of the women were aware about the distribution of supplementary nutrition for their children and for themselves. They were very clear about the benefits.

Non-formal education (3-6 years)-Almost all of the women send their children to the ICDS centers for non formal education. They found many changes among them related to health, hygiene, sanitation and cleanliness.

DISCUSSION

Present investigation focused on awareness of health for reducing the malnutrition among children living in urban slum belonging to age group of 3 to 6 years. In 1995, Institute of applied statistics and development studies, Lucknow (IASDS) conducted survey in Uttar Pradesh regarding nutritional status which is very close to NFHS study of All India in 1992-1993. It is revealed from the table 7 that results of present study are near to NFHS and IASDS results despite the fact that, the sampling framework, geographic coverage and target groups covered are different. There is about 6% reduction in last 10 years in underweight, *i.e.* 56% in 1995 to 39.2% (Non ICDS) and 36.2% (ICDS). The decline in severe underweight is

comparatively higher, which was 19.2% in 1995 to 16.3% (non ICDS) and 14.6% (ICDS). Height for age shows 50% reduction in the last several years *i.e.* stunting in 1995 was 59.3% to 28.1% in Non-ICDS and 27.8% in ICDS. The decline in stunting is comparatively lower *i.e.* 36.2% in 1995 to 35.1% in ICDS children which shows that awareness level of ICDS families was higher than the Non ICDS families. Prevalence of malnutrition is low among the children of ICDS in comparison to Non ICDS. On the basis of qualitative data analysis there was prevalence of following major nutritional deficiencies seen among the children**.**

- Protein energy malnutrition.
- Iron deficiency anemia.
- Endemic goiter and related iodine deficiency diseases.
- Nutritional blindness due to vitamin A deficiency.
- Intra uterine nutritional deprivation secondary

Causes of Malnutrition

Poverty: Commonest cause of malnutrition is poverty. The poor cannot purchase adequate amount of food of the desired quality for meeting their and their family's nutritional requirements. This deprivation adversely affects their capacity for physical work and endurance. They earn less and this starts as vicious cycle of poverty. Clinical manifestation of malnutrition depends on the duration of malnutrition deprivation, the age of the undernourished subject, relative lack of different proximate principles of food and the presence and absence of associated infections. In India and many other developing countries the major limiting factor in the diet of preschool children is energy. Lack of protein in the diet is more often due to low intake rather than a qualitative defect in the diet. Nutritional marasmus and kwashiorkor are two extreme forms of malnutrition. Under nutrition conditions are in the form mild to moderate. If the dietary intake is deficient for a short period, the body adopts its metabolism to compensate for the deficit to some extent. This is called mild nutrition condition. If the food deficit persists for a longer period of time, the malnourished subject converses his energy by curtailing the physical activity. Moderately malnourished children appear slower and less energetic. If the nutritional deficit continues for long, growth of the child is affected. With prolonged deprivation height is also stunted. Chest circumference normally exceeds the head circumference by the age of one year. But it may not do so till much later in malnourished children. The weight of child is reduced and appears disproportionate with the long body, thin limbs and unduly large head. As the nutritional deficit exaggerates with onsets of infections the child may become marasmic or develop kwashiorkor.

CONCLUSIONS

The present study revealed that growth and nutrition status of ICDS children was better than non-ICDS children. Male children whether they belonged to ICDS or

non-ICDS performed better than female children. Daily consumption of food by male group was better than female group. Daily intake of protein fat energy calcium was higher in ICDS than non-ICDS. Percentage of severely malnourished children was higher in non-ICDS than ICDS i.e. 16.3% and 14.6% respectively. Percentage of underweight children in ICDS is 36.2% while in non-ICDS is 39.2%.

LIMITATIONS

India is among those countries in the world with the highest recorded numbers of undernourished. As the country aspires to fulfill its economic and social development goals, malnutrition is one area which requires greater attention.Some limitations of ICDS are still found because wherever ICDS centre is running there is more than 1000 population. On the basis of government rules, one centre is for one thousand population. Therefore there is limitation of enrolment of children in the centre. Workers who are running these centres are not properly educated. Economic background of these workers is poor. Aganwadi workers are not happy with their job. Poor administration is another limitation due to which the facilities provided to children do not reach timely, for example to supplement nutrition which is in the form of Panjiri and Dalia, is not distributed by these centre regularly. Even some times, there is a gap of two or three months. Sometimes it reaches to one centre and not to other. That is all due to poor administration. In view of the above limitations the following recommendations can be suggested. The capacity for enrolment of children at these centres should be increased. Also the number of centres opened initially have not increased but the population has increased tremendously. Therefore in order to accommodate the increased number of children more centres should be established by the govt. Also for the workers at Aganwadi centres should have some basic training and qualification so that they understand the importance of health and nutrition and find no difficulty in managing the centre. The pay scales of the workers at these centres should be revised so that they get economic stability and take interest in the job.

Table 1: Distribution of sample by Decimal age

Mean Age	*Decimal Range*
3.0 years (3 years)	2.751 – 3.250
3.5 years (3.6 months)	3.251-3.750
4.0 years (4 years)	3.751 – 4.250
4.5 years (4.6 months)	4.251 – 4.750
5.0 years (5 years)	4.751 – 5.250
5.5 years (5.6 months)	5.251 – 5.750
6 years (6 years)	5.751 – 6.250

Table 2: Mean value of weight (Kg) of male and female children with t values showing difference between ICDS and Non ICDS children

S. No.	*Age*	*Male*	*Mean*	*Female*	*Mean*
1	2.751-3.250	ICDS (N 35)	11.71	ICDS (N 35)	10.85
		NON ICDS (N 34)	11.13	NON ICDS (N 34)	10.83
		t value	1.43		0.06
2	3.251-3.750	ICDS (N 28)	12.54	ICDS (N 35)	11.72
		NON ICDS (N 33)	12.62	NON ICDS (N 34)	12.03
		t value	0.18		0.80
3	3.751-4.250	ICDS (N 36)	12.56	ICDS (N 35)	12.51
		NON ICDS (N 23)	12.80	NON ICDS (N 34)	12.00
		t value	0.34		0.97
4	4.251-4.750	ICDS (N 26)	13.27	ICDS (N 35)	13.20
		NON ICDS (N 33)	11.86	NON ICDS (N 34)	12.59
		t value	2.19*		1.59
5	4.751-5.250	ICDS (N 36)	13.91	ICDS (N 35)	13.43
		NON ICDS (N 33)	13.40	NON ICDS (N 34)	13.07
		t value	1.21		0.96
6	5.251-5.750	ICDS (N 17)	14.46	ICDS (N 35)	14.52
		NON ICDS (N 25)	14.45	NON ICDS (N 34)	14.67
		t value	0.03		0.20
7	5.751-6.250	ICDS (N 19)	16.48	ICDS (N 35)	15.68
		NON ICDS (N 10)	14.81	NON ICDS (N 34)	14.68
		t value	2.49*		1.45

* Significant at p<0.05

Table 3: Mean value of height (cm) of male and female children with t values showing difference between ICDS and Non ICDS children

S. No.	*Age*	*Male*	*Mean*	*Female*	*Mean*
1	2.751-3.250	ICDS (N 35)	86.50	ICDS (N 35)	85.02
		NON ICDS (N 34)	83.78	NON ICDS (N 34)	82.36
		t value	1.86		1.66
2	3.251-3.750	ICDS (N 28)	88.59	ICDS (N 35)	87.00
		NON ICDS (N 33)	89.96	NON ICDS (N 34)	87.66
		t value	1.08		0.49
3	3.751-4.250	ICDS (N 36)	91.39	ICDS (N 35)	91.42
		NON ICDS (N 23)	92.74	NON ICDS (N 34)	66.78
		t value	0.84		2.93*
4	4.251-4.750	ICDS (N 26)	94.75	ICDS (N 35)	92.67
		NON ICDS (N 33)	90.67	NON ICDS (N 34)	90.58
		t value	2.60*		1.12
5	4.751-5.250	ICDS (N 36)	97.99	ICDS (N 35)	95.51
		NON ICDS (N 33)	94.62	NON ICDS (N 34)	92.01
		t value	2.49*		1.18
6	5.251-5.750	ICDS (N 17)	98.77	ICDS (N 35)	102.46
		NON ICDS (N 25)	99.67	NON ICDS (N 34)	99.90
		t value	0.50		1.08
7	5.751-6.250	ICDS (N 19)	106.96	ICDS (N 35)	105.90
		NON ICDS (N 10)	100.14	NON ICDS (N 34)	101.71
		t value	3.90*		2.53*

* Significant at p<0.05

Table 4: Mean value of Upper-arm circumference (cm) of male and female children with t values showing difference between ICDS and Non ICDS children

S. No.	*Age*	*Male*	*Mean*	*Female*	*Mean*
1	2.751-3.250	ICDS (N 35)	13.43	ICDS (N 35)	12.84
		NON ICDS (N 34)	12.91	NON ICDS (N 34)	13.23
		t value	1.06		1.02
2	3.251-3.750	ICDS (N 28)	13.35	ICDS (N 35)	13.12
		NON ICDS (N 33)	13.26	NON ICDS (N 34)	13.01
		t value	0.26		0.35
3	3.751-4.250	ICDS (N 36)	13.35	ICDS (N 35)	13.03
		NON ICDS (N 23)	13.52	NON ICDS (N 34)	12.55
		t value	0.58		1.31
4	4.251-4.750	ICDS (N 26)	12.96	ICDS (N 35)	13.29
		NON ICDS (N 33)	13.28	NON ICDS (N 34)	13.14
		t value	0.98		0.30
5	4.751-5.250	ICDS (N 36)	13.54	ICDS (N 35)	13.20
		NON ICDS (N 33)	13.99	NON ICDS (N 34)	13.34
		t value	0.91		0.34
6	5.251-5.750	ICDS (N 17)	13.02	ICDS (N 35)	14.11
		NON ICDS (N 25)	13.53	NON ICDS (N 34)	13.55
		t value	1.22		0.96
7	5.751-6.250	ICDS (N 19)	14.12	ICDS (N 35)	14.20
		NON ICDS (N 10)	13.29	NON ICDS (N 34)	14.17
		t value	1.61		0.11

* Significant at p<0.05

Table 5: Mean value of head circumference (cm) of male and female children with t values showing difference between ICDS and Non ICDS children

S. No.	*Age*	*Male*	*Mean*	*Female*	*Mean*
1	2.751-3.250	ICDS (N 35)	47.01	ICDS (N 35)	45.60
		NON ICDS (N 34)	46.42	NON ICDS (N 34)	45.87
		t value	0.76		0.50
2	3.251-3.750	ICDS (N 28)	47.55	ICDS (N 35)	45.85
		NON ICDS (N 33)	47.73	NON ICDS (N 34)	46.50
		t value	0.34		1.11
3	3.751-4.250	ICDS (N 36)	45.76	ICDS (N 35)	46.83
		NON ICDS (N 23)	48.25	NON ICDS (N 34)	46.43
		t value	3.22*		0.91
4	4.251-4.750	ICDS (N 26)	47.31	ICDS (N 35)	47.50
		NON ICDS (N 33)	47.61	NON ICDS (N 34)	46.25
		t value	1.73		2.20*
5	4.751-5.250	ICDS (N 36)	47.04	ICDS (N 35)	46.10
		NON ICDS (N 33)	45.95	NON ICDS (N 34)	47.05
		t value	0.73		0.14
6	5.251-5.750	ICDS (N 17)	48.57	ICDS (N 35)	48.51
		NON ICDS (N 25)	46.90	NON ICDS (N 34)	47.89
		t value	0.66		0.65
7	5.751-6.250	ICDS (N 19)	48.74	ICDS (N 35)	48.19
		NON ICDS (N 10)	46.67	NON ICDS (N 34)	48.26
		t value	0.063		0.08

* Significant at p<0.05

Table 6: Mean value of chest circumference (cm) of male and female children with t values showing difference between ICDS and Non ICDS children

S. No.	*Age*	*Male*	*mean*	*Female*	*mean*
1	2.751-3.250	ICDS (N 35)	49.39	ICDS (N 35)	46.16
		NON ICDS (N 34)	47.47	NON ICDS (N 34)	46.67
		t value	1.02		0.57
2	3.251-3.750	ICDS (N 28)	48.54	ICDS (N 35)	48.63
		NON ICDS (N 33)	49.34	NON ICDS (N 34)	48.20
		t value	1.02		0.71
3	3.751-4.250	ICDS (N 36)	49.27	ICDS (N 35)	48.67
		NON ICDS (N 23)	48.19	NON ICDS (N 34)	48.77
		t value	0.54		0.76
4	4.251-4.750	ICDS (N 26)	50.40	ICDS (N 35)	48.77
		NON ICDS (N 33)	48.19	NON ICDS (N 34)	48.75
		t value	1.42		0.01
5	4.751-5.250	ICDS (N 36)	46.92	ICDS (N 35)	49.53
		NON ICDS (N 33)	48.47	NON ICDS (N 34)	48.68
		t value	0.88		1.14
6	5.251-5.750	ICDS (N 17)	52.66	ICDS (N 35)	52.06
		NON ICDS (N 25)	50.63	NON ICDS (N 34)	51.37
		t value	1.32		0.84
7	5.751-6.250	ICDS (N 19)	63.02	ICDS (N 35)	52.49
		NON ICDS (N 10)	51.29	NON ICDS (N 34)	60.05
		t value	1.34		2.13*

* Significant at $p<0.05$

Table 7: Comparison of prevalence of malnutrition in present study with the study by Institute of applied statistics and development studies, Lucknow

Malnutrition Index	*IASDS (UP) N=6,113*	*Present study*	
		ICDS (N=388)	*Non-ICDS (N=438)*
Weight for age			
Underweight			
<2SD	52.0%	36.2%	39.2%
<3SD	22.4%	14.6%	16.3%
Height for age (Stunting)			
<2SD	59.3%	27.8%	28.1%
<3SD	36.2%	35.1%	47.0%

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