

Assessment of Nutritional status of ICDS Beneficiaries on Pregnant Mothers in Shillong, Meghalaya.

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Abstract: The present study entitled “Assessment of Nutritional Status of ICDS Beneficiaries on Pregnant Women in Shillong, Meghalaya” aimed to find out, the nutritional status of ICDS beneficiaries pregnant mothers, to compare the nutritional status of the ICDS and Non ICDS and to find out the impact of nutrition education on the selected pregnant women by using Booklet and Pamphlet 5 areas of shilling. A total of one hundred and fifty pregnant women were selected from three Anghanwadi centres and three primary health centres for the study and were personally interviewed with the help of preset schedule. The anthropometric measurements (Height, Weight, and BMI) and clinical observation was taken. Dietary intake (24 hour ICMR, 2010) and nutrition education was given to the pregnant women by using Booklet and Pamphlet. After observation, it was found that, pregnant women who are ICDS beneficiaries had good health and appearance as compare to Non ICDS pregnant women. It was also observed that ICDS pregnant women had good dietary intake as compared to the Non ICDS pregnant women. And the impact of nutritional education by using booklet and pamphlet was successively developed and found highly effective in imparting education to the pregnant women. The nutrition education materials were found successful as the gain and retention in knowledge level of respondents were recorded. It is probably that the nutrition education material (Booklet, and pamphlet) if translated into other language may be useful in educating similar population groups elsewhere in other parts of the country and even in other developing countries and may prove integral and beneficial as important part of education strategies adopted for combating malnutrition from the community.

Keywords: ICDS; pregnant mothers; nutrition education; Shillong

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I. Introduction

Introduction in many developing countries, complications of pregnancy and child birth are leading causes of death among women of reproductive age. The maternal health situation in the country has been staggering despite several changes in a rapidly evolving socioeconomic environment. Adequate nutrition for all is among the most obvious priorities of total development. Malnutrition impairs development and malnourished children are at a greater risk of survival than healthy ones. To combat the problem of malnutrition and to further reduce the incidence of mortality and morbidity among the vulnerable sections of society, an integrated multispectral approach has been adopted by the Government, by introducing Integrated Child Development Service Scheme. Integrated Child Development Services (ICDS) is a government programme in India which provides food, preschool education, and primary healthcare to children less than 6 years of age and their mothers. ICDS is the world’s largest program for the holistic development of children aged 0-6 years, expectant and lactating mothers and selected adolescent girls. With a view to improving the health and nutrition status of children in the age group of 0-6 years, pregnant women and lactating mothers, the special Nutrition Program has been included as one of the most important components of the ICDS Program. It also aims at improving awareness of the community as a whole, and brings about behaviour change. ICDS has provided significant assistance to as the nation’s health and education system for decades. The Ministry of Women and Child development (MWCD) of India established ICDS in 1975. It is the world’s largest early child development program. The objective of this program is to improve the nutritional status of pregnant women in addition to other services. Therefore keeping in view the gap between the target and reality, the finding of the present would help to study the socio economic status of the respondents and understand the nutrients adequacy of ICDS beneficiaries on pregnant women in Meghalaya, East Khasi Hills District. The finding of the study will provide useful guidance and understanding about the nutrients adequacy influencing the nutritional status of the selected respondents.

II. Materials and Methods

Location of study: East Khasi Hills district of Meghalaya State was selected for the study. East Khasi Hills District forms a central part of Meghalaya and covers a total geographical area of 2,748Sq. Km². The sub-city is characterized by typical flow of illiterate population especially women.

Selection of respondents: One hundred fifty (150) pregnant mothers from 5 urban Anganwadi centres and 5 primary health centres of Myllem block were selected for the study.

Data collection: Survey method was adopted to collect the data from the selected respondents with help of pre-tested schedule. The mothers were personally interviewed during the period of study for the collection of required information. Schedule included the aspects which led to the fulfillment of the objectives.

General profile: In order to collect the detailed information during the survey questionnaire was prepared. A sample questionnaire used is given in the Appendix. The questionnaire comprises of three parts, A, B and C. Part 'A' contains questions for the assessing the socio-economic status of families. Part 'B' contains questions for assessing the Nutritional status, and also various clinical signs of deficiency. Part 'C' Developed to seek information regarding the individual food intake and knowledge levels of mothers in nutrition and health aspects. The questionnaire was pre-tested and the necessary changes were made.

Anthropometric assessment: This technique was concerned with the variations of physical dimensions, the gross composition and degree of nutrition. Here anthropometric measurement techniques used are height, weight and BMI (Joshi, 2010).

- a. **Height measurement:** Height in centimeter of the subject was taken with the help of the measuring tape by sticking it to the wall. The subjects was made to stand erect looking straight, buttocks, shoulders and head touch in the wall, heels together, toes apart and hands hanging by the sides. Three consecutive reading was taken and the mean value will be recorded (Srilakshmi, 2010)
- b. **Weight measurement:** The weighing scale with maximum capacity of 120 kg and the minimum divisions of 0.5kg was use to weigh all subjects. The respondents were made to stand erect on the weighing scale with minimum clothes, without foot wear, not leaning against or holding anything and the weight were recorded in kilograms (kg). The measurements were made to the nearest 0.1 kilogram. Three consecutive reading were taken for all the subjects and the mean value will be recorded. The scale will be adjusted to zero after each measurement (Srilakshmi, 2010).

Dietary Intake (24 hour dietary recall method): A diet survey was conducted as the food consumption frequency were recorded in term of cereals, pulses, milk and milk products, green leafy vegetables, other vegetables, fruits, poultry, sugar, jaggery and salt intake. Information related to dietary pattern, food habit, food intake, food frequency was also recorded. The food intake was recorded by 24 hour dietary recall method and nutrient intake in terms of energy, protein, carbohydrates, fats, calcium, iron, vitamin C and vitamin A were calculated. Calculation of nutrient intake were done with the help of the food composition table (Srilakshmi, 2010) and compare with recommended dietary allowances (ICMR, 2010)

Clinical Assessment: A schedule in which the different clinical signs are present was prepared. The schedule was in accordance with the ICMR score card for clinical assessment. The various clinical signs were observed for the deficiency signs. The help of a doctor, who was the medical officer of the Primary Health Centre, was taken for clinical assessment.

Nutrition Education: The nutrition education was carried out through nutrition package in the study. Nutrition education was imparted to the experimental group only; control group did not get any exposure to nutrition education package. The information in the nutrition education package was related to anemia, vitamin A, dehydration of vegetables and its usages into conventional recipes. For nutrition Education Material A booklet and pamphlet were developed in this Nutrition Education Material for imparting nutritional education on the awareness and utilization of micronutrient rich foods.

Statistical analysis: Descriptive data analyses were performed to generate frequencies and proportions from each variable in relation to outcome variable. Pre-test Knowledge component was compared with their respective post-test questions to see the significance of change in each question. The change in each component from pre to post counseling was said to be significant if the Confidence interval of two proportions does not

overlap. This similar technique was applied in practice score for each dietary practice component5s. The overall knowledge and practice scores of pregnant women before and after nutrition education were tested using paired t-test. The data collected were tabulated and subjected to statistical analysis using Standard test, Paired t-test. The following statistical tests were used for the study according to the suggestion of **Gupta and Kapoor (2002)**.

III. Results and Discussions

The data collected, tabulated and calculated under the study are present with the appropriate illustration and discussed in this chapter.

Table 1 summarizes the general information about the ICDS and Non ICDS respondents and it's subsequently described in terms of the characteristics selected for study. Under the general profile age, type of family, family composition, education, occupation, income, earning members of the family etc. of the respondents is considered and is mentioned below:

Table 1 Shows that the total numbers of respondents were 150 pregnant women, where 75 respondents were ICDS beneficiaries and 75 respondents were Non ICDS beneficiaries. Their age range was between 18-35 years. Among the ICDS beneficiaries maximum number (54.67%) belongs to the age group of 26-30 years while (38.67%) belongs to 21-25 years, (17.33%) belongs to the age group of 31-35 years and (13.33%) percent belongs to 18-20 years. In the other hand the Non ICDS respondents' maximum number was (33.32%) which belongs to the age group of 26-30 years while (26.67%) belongs to 21-25 years, (9.33%) belongs to 31-36 years and 6.67 percent belongs to 18-20 years. Type of family: In this table we observed that the majority of ICDS beneficiaries (74.67%) belong to the nuclear families and 29 percent belongs to the joint families. While the majority of Non ICDS respondents (53.33%) belongs to the joint families and (42.67%) belongs to the nuclear families. Family composition: In the family composition it was observed that the majority of ICDS 30 percent belongs to the 2-4 members group, while 29.33 percent belongs to 4-8 members group, 18.67 percent belong to 10 and above members group and 13.33 percent belongs to above 8-10 members group. While the majority of Non ICDS 40 percent belongs to 4-8 members group, 26 belongs to the 8-10 members group, 24 belongs to the 2-4 member group and 12 percent belongs to the above 10 members group. Education: The level of education is varied widely among the respondents, it was observed that the majority of ICDS women who studied primary was 40 percent and high school 16 percent were more compared to intermediate (13.33%) illiterate (8%) and graduate (6.67%). While the majority of Non ICDS respondents who studied primary was 52 percent and high school 28 percent were more compared to intermediate (18%) Illiterate (10%) and (graduates 6.67%) Occupation: The respondents exhibited diversified occupational pattern, majority of the ICDS respondents were homemakers 60 percent and 53.33 percent of the respondents were employed in various field. While the Non ICDS respondents were homemakers 53.33 percent and 33.33 percent were employed in various field. Income: Majority of the ICDS respondents were (53.33 %) of them were falling in the income range 5,000-10,000, while 26.67 percent were 10,001- 15,000, 13.33 percent were falling in the income range 15,001- 20,000 and 9.33 percent having a minimum salary of Rs 20,000 above. While majority of the Non ICDS respondents were 46.67 of them were falling in the income range 5.000-10,000, while 26.67 percent having a minimum salary of 15.001-20.001, while 20 percent having a minimum salary of 10,001-15000 and 4 percent having a minimum of 20.000 above. Earning members of the family: Majority of ICDS beneficiaries (46%) had only one earning member followed by two (33%), three (20%) and four (6.67%). While majority of the Non ICDS respondents (33.33%) had only one earning member followed by 2 (26.67%), three (20%) and four (13.33%).

Table 1 Distribution of the respondents according to their general information

Sl. No	Particulars	ICDS (N=75)	Percentage %	Non ICDS (N=75)	Percentage %
1	Age group				
	18-20	10	13.33	5	6.67
	21-25	29	38.67	20	26.67
	26-30	41	54.67	25	33.33
	31-35	13	17.33	7	9.33
2	Type of family				
	Nuclear	56	74.67	32	42.67
	Joint	22	29.33	40	53.33
3	Family composition				
	2 to 4	27	36.00	18	24.00
	4 to 8	22	29.33	30	40.00
	8 to 10	10	13.33	20	26.67
	>10	14	18.67	9	12.00
4	Education				

	Illiterate	10	13.33	8	10.67
	Primary	30	40.00	39	52.00
	High School	12	16.00	21	28.00
	Intermediate	6	8.67	14	18.00
	Graduates	5	6.67	5	6.67
5	Occupation				
	House wife	45	60.00	40	53.33
	Working women	40	53.33	25	33.33
6	Income Rs/month				
	5000/10,000	40	53.33	35	46.67
	10,001/15,001	20	26.67	15	20.00
	15,001/20,001	10	13.33	20	26.67
	>20,001	7	9.33	3	4.00
7	Earning members of the family				
	one	35	46.67	25	33.33
	two	25	33.33	20	26.67
	three	15	20.00	15	20.00
	>four	5	6.67	10	13.33

Table 2 shows that the nutrients consumed by the respondents compare with the ICMR values, we find that energy intake of respondents in ICDS is lower than compare with the RDA (difference -129.6). The energy intake of respondents in ICDS is much lower than compare with ICDS and RDA (difference -606.40).

More than recommended values. Proteins of ICDS respondents are equal to ICMR standards. In the Non ICDS protein intake (difference - 5.7). Fats are proportionate to ICMR standards. Calcium of ICDS respondents is equal to the ICMR standard. In the Non ICDS calcium intake (difference -0.59)are lower than the ICMR-RDA

In both ICDS and Non ICDS group Iron, carotene and thiamine intake of the respondents are lower than the standard values. Intake of Vitamin-C in ICDS and Non ICDS is lower than compare with the ICMR standards. The above findings is in accordance with the study **Diwakar. K. K. and Bhaskaranand.** the nutrients intake of the pregnant mothers in ICDS and non- ICDS areas has showed that the caloric intake of the pregnant mothers in the ICDS areas were 1046/1330 and 1333 Kcals, respectively. In the non-ICDS areas the caloric intake was 1241, 1049 and 1240 Kcals respectively.

Table 2 Average nutrients intake of ICDS respondents (24 hours recall)

Nutrients	RDA (ICMR)	ICDS	Difference	NON ICDS	Difference
Energy (kcal)	2825	2650.9	-129.6	1918.6	-606.40
Protein (g)	50-65	56.42	-	44.3	-5.7
Fat (g)	35-50	38	-	30	-5
Calcium (mg)	1	1	-	0.42	-0.59
Iron (mg)	38	35	-3	30.8	-7.2
Carotene	2400	2348	-52	2185	-215
Thiamine (mg)	2	1.2	-0.8	1.5	-0.5
Vitamin C (mg)	40	38	-2	39	-1

The data indicates that the majority of the ICDS beneficiaries (80%) were found to be normal, 13.33 percent were found to be overweight and 6.67 percent were found to be underweight. While the Non ICDS respondents (60%) were found to be normal, 20 percent were found to be overweight and 20 percent were found to be underweight.

The above findings are in accordance with the findings of **Nucci et al., (2001)** maternal nutritional status is an important determinant of pregnancy outcomes since prepregnancy underweight has traditionally been considered a risk factor for adverse gestation outcomes. The objective of the study was to evaluate the impact of pre-obesity and obesity among pregnant women, describing their prevalence and risk factors, and their association with adverse pregnancy outcomes. Age- adjusted prevalence (and 95% CI) based on prepregnancy weight were: underweight 5.7% (5.1% - 6.3%), overweight 19.2% (18.1% - 20.3%), and obesity (5.5%).

Fig 1 Distribution of ICDS and Non ICDS respondents according to their BMI

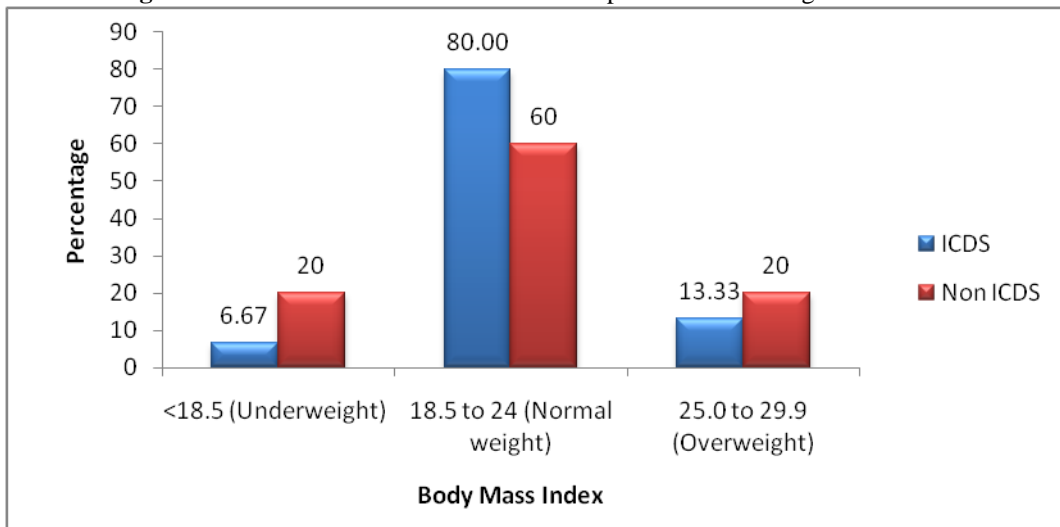


Table 4 shows that 9.33 respondents did not have any complications in both ICDS and Non ICDS. In ICDS beneficiaries, 26.67% respondents were reported symptoms of gas + vomiting, 13.33% respondents were reported symptoms of vomiting, 9.33% reported nausea + dizziness, bleeding + hypertension, bleeding + vomiting, 6.33% reported hypertension, 4 percent reported swelling + breathlessness and occasional bleeding, 2.67% reported swelling + vomiting and 1.33 percent reported gas = heartburn. In Non ICDS respondents, 26.67% respondents were reported symptoms of gas + vomiting, 13.33% reported hypertension, 13.33% respondents were reported symptoms of vomiting, 10.67% reported nausea + dizziness, bleeding + hypertension, bleeding + vomiting, 4 percent reported swelling + vomiting, 2.67% reported swelling + breathlessness and occasional bleeding, and 1.33 percent reported gas = heartburn.

Table 4 Distribution of ICDS and Non ICDS according to their complications.

Sl No.	Complication.	ICDS (N=75)	Percentage %	Non ICDS (N=75)	Percentage %	Total Average n= 150)	Percentage %
1	Vomiting	10	13.333	10	13.33	20	13.33
2	Hypertension	5	6.67	10	13.33	25	16.67
3	Nausea + dizziness	7	9.33	8	10.67	15	10.00
4	Swelling + Breathlessness	3	4	2	2.67	5	3.33
5	Occasional bleeding	3	4	2	2.67	5	3.33
6	Swelling + Vomiting	2	2.67	3	4.00	5	3.33
7	Gas + Heartburn	1	1.33	1	1.33	2	1.33
8	Gas + Vomiting	20	26.67	20	26.67	40	26.67
9	Bleeding + Hypertension	7	9.33	8	10.67	15	10.00
10	Bleeding + vomiting	7	9.33	8	10.67	15	10.00
11	None of the above	6	8	7	9.33	14	9.33

Dietary pattern: Table 5 shows that in ICDS beneficiaries, maximum (100%) number of respondents restricted papaya and sesame, spices, chilies, sour item were restricted by the respondents 13.33 percent, fish 44 percent, egg 20 percent due to the benefits that these food items may cause an adverse effect on pregnancy.

In Non ICDS beneficiaries, maximum (100%) number of respondents restricted papaya and sesame, spices, chilies, sour item were restricted by the respondents 40 percent, , fish 26.67 percent, egg 6.67 percent due to the benefits that these food items may cause an adverse effect on pregnancy.

Table 5 Distribution of respondents according to food avoided during pregnancy.

Sl. No.	Food avoided	ICDS (N=75)	Percentage %	Non ICDS (N=75)	Percentage %
1	Papaya	75	100.00	75	100
2	Chilies, species, Sour item	10	13.33	30	40
3	Sesame	75	100.00	75	100
4	Egg	15	20.00	5	6.67
5	Fish	33	44.00	20	26.67

Table 6 the level of knowledge of the respondents regarding symptoms and prevention of anemia, vitamin A deficiency and micronutrients deficiency.

Pre – exposure Knowledge level: Before nutrition education majority of the respondents (62.67%) were in low knowledge category with a mean score of 31.98 percent. In general the knowledge of pregnant women about nutritional importance of micronutrients and its utilization was poor. The distribution of subject according to low, medium and high category shows that subjects failing in knowledge category had a mean score of 31.98.

Patel et al., (2005) also concluded in their study that more than 50 percent of respondents had a low level of knowledge, whereas the remainder possessed a medium level of knowledge before viewing the multimedia. No respondents in the group was found having level of knowledge.

Past exposure knowledge level: Table 4.18 also shows that when the subject in the experimental group were exposed to the Nutritional Education material, their knowledge level was raised and majority of the respondents (60%) obtained low score with a mean percentage score of 34.9%.

With the same experimental group exposed to Nutrition Education material were knowledge score further increased showing all the respondents in high knowledge category with a mean score of 68.03 percent. **Sangha et al., (2006)** imparted nutrition education to parents of obese children through lecture cum leaflets and personal discussion on various topics. The found a significant difference ($p < 0.01$) in the score of pre-test and post-test of nutrition education of the parents of both male and female subjects.

Table 6 Knowledge level of pregnant women at Pre-exposure of Pamphlet and booklet.

Knowledge categories	Mean Percent Knowledge														
	Pre-exposure (n = 120)			Post Exposure						Retention of Knowledge					
				Control (n=50)			Experimental (n=50)			Control (n=50)			Experimental (n=30)		
	N	%	Mean percent knowledge score	N	%	Mean percent knowledge score	N	%	Mean percent knowledge score	N	%	Mean percent knowledge score	N	%	Mean percent knowledge score
Low categories (<40 marks)	9	62.6		3	7		3	6		1	2		1	3	
	4	7	31.98	5	0	35.17	0	0	34.9	0	0	35.64	7	4	27.41
Medium category (40-55 Marks)	2			1	3		2	4		4	8		3	6	
	1	14	46.71	5	0	61.03	0	0	46.75	0	0	46.73	3	6	46.64
High category (> 55 Marks)	3	24.6		*	*	*	*	*	*	*	*	*	*	*	*
	7	7	68.03												

Table 7 shows that the results indicates that at baseline survey, after nutritional awareness of pregnant women was 40% obtained in medium score and 60% obtained in low score. Table 4.13 Shows the significance of the difference in the level of knowledge before exposure of Nutritional Education material as well as after one month by applying the paired ‘t’ test. A result indicates that in the experimental group the mean knowledge scores increased considerably after nutrition education through Nutrition education material. When the test of significant was applied between pre – and post- test was found that the calculated value of control group is t (1.89) (Fig 4.19) and the value of experimental group is t (0.42). (Fig 4.20) Therefore it is concluded that nutrition education significant ($p \leq 0.05$) improved the knowledge of pregnant women about nutritional importance of micronutrients and its utilization of surplus whole grains and green leafy vegetables.

Soumyajit et al., (2011) also reported in their study that significant, difference was clear between pre and post-test knowledge of children concerning PEM ($p < 0.001$). The mean scores of 0.43 obtained in pre-test were increased to 2.34 after giving nutrition education. Thus, imparting nutrition education was found to be effective for improving the level of nutrition education. Thus, imparting nutrition education was found to be effective for improving the level of nutrition education among the students in present study.

Table 6 Mean Knowledge scores of Pre and Post Test

Group	Pre-exposure mean score	Post-exposure mean score	Difference between pre-exposure mean score	t' value
Control (n=50)	35.17	34.9	1.08	1.89
Experimental (n=50)	61.03	46.75	14.28	0.42

*significant at $P > 0.05$ level of probability

IV. Conclusion

Based on the result of the study, it was found that pregnant women who are ICDS beneficiaries had good health and appearance as compare to Non ICDS pregnant women. It was also observed that ICDS pregnant women had good dietary intake as compared to the Non ICDS pregnant women. And the impact of nutritional education by using booklet and pamphlet was successively developed and found highly effective in imparting education to the pregnant women residing in the village of Pynthorumkhrah prevention and control of micronutrients deficiency. The nutrition education materials were found successful as the gain and retention in knowledge level of respondents were recorded. It is probably that the nutrition education material (Booklet, and pamphlet) if translated into other language may be useful in educating similar population groups elsewhere in other parts of the country and even in other developing countries and may prove integral and beneficial as important part of education strategies adopted for combating malnutrition from the communit

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