

## Impact of nutrition education on the knowledge of adolescent girls regarding nutrition during pregnancy and lactation

### El impacto de la educación nutricional en los conocimientos de las adolescentes sobre la nutrición durante el embarazo y la lactancia

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#### ABSTRACT

Adolescence is one of the crucial phases of life when an individual learns the adult behavior and gets ready to take important decisions of life. It is also known as storm age of life as the individual goes through lots of stress because this is the direction deciding stage of life. In case of Indian adolescent girls, lots of social taboos and expectations expose these adolescent girls to challenges of life during early years. In order to strengthen adolescent girls in the age group of 15-18 years regarding nutrition during pregnancy and lactation, a pre and post test research study was undertaken with 100 adolescent girls, selected randomly from three government schools of Sikar district, Rajasthan. Objectives of the study were to assess the existing knowledge of adolescent girls regarding nutrition during pregnancy and lactation and analysis of the impact of training on the existing knowledge. A training manual was designed by the researcher and data were collected through a questionnaire schedule and analysed using frequency, mean percentage and paired t-test. Results of the study suggest that training programme had huge impact on the knowledge of adolescent girls. This might be because, adolescent girls have curiosity to learn and training programme was participatory in nature. It can be concluded that adolescents can be training on various aspects of nutrition during lifecycle, health, entrepreneurial skill development, digital literacy etc.

Keywords: adolescent girls, pregnancy and lactation, knowledge, training

## RESUMEN

La adolescencia es una de las fases cruciales de la vida en la que un individuo aprende el comportamiento adulto y se prepara para tomar decisiones importantes en la vida. También se conoce como la edad de la tormenta de la vida, ya que el individuo pasa por mucho estrés porque es la etapa de la vida en la que se decide la dirección. En el caso de las adolescentes indias, muchos tabúes y expectativas sociales las exponen a los retos de la vida durante los primeros años. Con el fin de reforzar la nutrición de las adolescentes de entre 15 y 18 años durante el embarazo y la lactancia, se llevó a cabo un estudio de investigación previo y posterior con 100 adolescentes seleccionadas al azar en tres escuelas públicas del distrito de Sikar, Rajasthan. Los objetivos del estudio eran evaluar los conocimientos existentes de las adolescentes sobre la nutrición durante el embarazo y la lactancia y analizar el impacto de la formación en los conocimientos existentes. La investigadora diseñó un manual de formación y recogió los datos mediante un cuestionario que se analizó utilizando la frecuencia, el porcentaje medio y la prueba t pareada. Los resultados del estudio sugieren que el programa de formación tuvo un gran impacto en los conocimientos de las adolescentes; esto puede deberse a que las adolescentes tienen curiosidad por aprender y a que el programa de formación era de naturaleza participativa. Se puede concluir que las adolescentes pueden recibir formación sobre diversos aspectos de la nutrición durante el ciclo vital, la salud, el desarrollo de habilidades empresariales, la alfabetización digital, etc.

Palabras clave: mujeres adolescentes, embarazo y lactancia, conocimientos, formación

## INTRODUCTION

Adolescence is a transitional stage of life in which dynamic brain development takes place and interaction with social environment is the foundation for the competencies an individual takes forward into the life ahead. It is the phase of life when an individual gains the physical, cognitive, emotional, social, and economic resources which help him/her in attaining health and well-being. Many classical thinkers have compared adolescence to spring, adulating and overpraising both. In reality, however, this spring of life is often neglected and restricted by strong social customs and norms, and these too are seen to apply more to girls than boys.

Appropriate nurturing of the blossoming adolescent girls, is crucial for enabling them to become healthy and happy citizens of tomorrow. This enthusiastic and agile member of society needs loving guidance and a disciplined path geared to meet her specific social, health, nutritional and educational needs. Many studies and statistics provide substantial evidence of the neglect of adolescent girls, a population of potentially capable future adults. The neglect is manifested in diverse ways and, when considered together, an alarming social picture is revealed. The impact of social challenges faced by these young girls in the form of child marriage, gender discrimination, teenage pregnancy, and sexual abuse is illustrated in high Infant Mortality Rates (IMR), Maternal

Mortality Rates (MMR) and morbidity. Recent data from first phase of NFHS-5 also endorse the challenge which reflect decline in nutritional status of children under 5 years, higher percentage of anaemia in women and increase in teenage pregnancies (The Hindu, 2020). In terms of education, the differential in enrollment and dropout rates of girls compared to boys is dramatic and further evidence of the social discrimination and disadvantages experienced by girls reveal the distressing image being drawn.

Investing in adolescents and empowering them about various aspects of life yields triple benefits: making happy and healthy adolescents, creating healthy adults and for the next generation of children. Training girls during their early years of life will develop strong foundations. Improvement in adolescence health indicators will also help India in achieving Sustainable Development Goals (SDGs). Looking at the significance of adolescence, Government of India has also focused on adolescent health in various programmes and policies. Thus, present study was planned with the following objectives; 1) To assess the existing level of knowledge of adolescent girls regarding nutrition during pregnancy and lactation. 2) To analyse the impact of training on the knowledge of adolescent girls regarding nutrition during pregnancy and lactation

## MATERIALS AND METHODS

Present study was designed to assess the existing knowledge of rural adolescent girls in the age group of 15-18 years regarding different aspects of nutrition during pregnancy and lactation and analyse the impact of training on the knowledge of these girls in Dhod Panchayat Samiti of Sikar district in Rajasthan. Dhod panchayat Samiti was selected purposively as the researcher was the resident of that area and was well acquainted with the locations. Three government schools, namely Government Senior Secondary School Churoli-Khakoli, Shihot Chhoti and Phagalawa were selected randomly from the list obtained from District Education Officer. Total 100 rural adolescent girls in the age group of 15-18 years were selected from the list of schools obtained from these schools; 50 girls from school Churoli-Khakoli, 25 from Shihot Chhoti and 25 from Phagalawa respectively. The age group 15-18 years was selected as it is the optimal age of marriage in rural areas and girls in this group can be quite resourceful by empowering them to take decisions for themselves and their families' well-being. Data were collected through a questionnaire developed by researcher and analysed using mean percentage and paired t-test.

## RESULTS AND DISCUSSION

Results of the present study are divided into four categories;

1. Nutritional needs of Pregnant and lactating woman
2. Amount of foods stuffs to be given to pregnant and lactating woman
3. Consequences of not taking proper diet during pregnancy and lactating

#### 4. Knowledge regarding Breast feeding

##### Nutritional needs of pregnant and lactating woman

Initially 34-43 percent adolescent girls had knowledge about increased need of nutrients for pregnant woman i.e. protein, Iron and calcium. After training, most of the respondents (79-90%) reported about all the nutrients required in extra amount for a pregnant woman i.e. Protein, Iron, Calcium, Folic acid and Vitamin B.

Table 1: Distribution of adolescent girls by their knowledge about nutritional needs of pregnant woman and reasons thereof. N = 100

Items	Pre test f / (%)	Post test f / (%)	Items	Pre test f / (%)	Post test f / (%)
Increased need of nutrients for pregnant woman			Reasons		
a. Protein	34	87	a. To meet mother's daily requirements	25	97
b. Iron	43	89	b. For proper growth and development of foetus	53	94
c. Calcium	38	90	c. To increase immunity of both mother and infant	37	89
d. Folic acid	31	82	d. To store nutrients for lactation	31	86
e. Vitamin 'B'	29	79	e. To prevent anaemia during pregnancy	46	96
			f. For safe delivery	36	84

Regarding reasons, half of the adolescent girls (53%) reported that additional Protein, Iron and Calcium etc. are required for proper growth and development of foetus while 31-46 percent could tell about the reasons i.e. to store nutrients for lactation, to increase immunity of infant and mother and prevention from anaemia during pregnancy. But after training, most of them (84-97%) could mention about all the reasons. This might be because the students were attentive and took interest in gaining knowledge about why of including increased need of nutrients during pregnancy.

Table 2: Distribution of adolescent girls by their knowledge about nutritional needs of lactating woman and reasons thereof. N = 100

Items	Pre test f / (%)	Post test f / (%)	Items	Pre test f / (%)	Post test f / (%)
Increased need of nutrients for lactating woman			Reasons		
a. Carbohydrate	30	93	a. To meet mother's own nutrient requirements	40	92
b. Protein	41	86	b. For adequate milk production	35	94
c. Fat	39	83	c. To bring the reproductive system in normal stage	24	91
d. Calcium	29	72	d. For recovery of blood loss during delivery	31	89
e. Vitamin 'A'	30	90	e. For strength and stamina	42	86
			f. For proper growth and development of child	39	84

Similarly, during lactation, nearly 30-41 percent adolescent girls knew about the increased demand of different nutrients with the reasons that these are required for recovery of blood loss during delivery, for proper growth and development of child, for meeting mother's daily requirements etc. But after imparting training, 72-94 percent of the adolescent girls could tell about nutrients needed for lactating woman & reasons thereof. This is because the girls have realized the importance of lactation period and acquired knowledge.

#### Amount of foods stuffs to be given to pregnant and lactating woman

Prior to training, nearly half of the respondents (42-52%) were knowing about correct amount of different food stuffs to be given to women during pregnancy i.e. cereals, pulses, milk and milk products and fruits and vegetables. With respect to lactating woman, Table 3 also narrates that more than half of the adolescent girls (54%) had correct knowledge about amount of milk and milk products and vegetables and fruits.

Table 3: Distribution of adolescent girls by their knowledge about correct amount of food stuffs to be given to pregnant and lactating woman. N=100

S. No.	Food stuffs	Pregnant woman		Lactating woman	
		Pre-test	Post-test	Pre-test	Post-test
		f / (%)	f / (%)	f / (%)	f / (%)
1.	Cereals	52	96	43	91
2.	Pulses	42	88	42	83
3.	Milk and milk products	46	96	54	96
4.	Vegetables and fruits	45	93	54	91

After an exposure to training a vast majority (83-96%) could tell the correct amount of all food stuffs to be given to pregnant and lactating woman. Probably the messages were perceived as useful and simple by them.

Table 4: Distribution of adolescent girls by their knowledge about type of foods to be included in the diet of pregnant and lactating woman. N=100

S. No.	Food Stuffs	Pregnant woman		Lactating women	
		Pre-test	Post-test	Pre-test	Post-test
		f / (%)	f / (%)	f / (%)	f / (%)
1.	Nutritious food having all food groups	61	93	59	92
2.	Less spicy foods	44	78	31	63
3.	Easily digestible food	50	81	53	86
4.	More liquid foods	19	83	42	91
5.	More fiberous foods	21	90	56	83
6.	Less fried foods	34	69	32	69
7.	Fresh foods	58	92	37	89

Initially 50-61 percent of the adolescent girls had knowledge about the type of foods to be included in the diet of pregnant and lactating woman i.e. nutritious foods having all food groups, easily digestible and fresh foods. After the information building programme, the maximum number of respondents (81-93%) could tell about all foods to be included in the diet of pregnant and lactating woman, i.e. more of liquid foods, fibrous foods, easily digestible foods, less spicy and fresh foods. This desirable change among respondents might be because the girls have observed

the inclusion of these food stuffs during pregnancy and lactation in their families, further through training they might have recalled such messages.

Results of the study are in line with the study conducted by Antony et al (2007) on “Dietary habits and effect of two different educational tools on nutritional knowledge of school going adolescent girls in Hyderabad, India” reported that a significant improvement in the nutrition related knowledge was observed among the experimental group after intervention.

#### Consequences of not taking proper diet during pregnancy and lactating

Initially more than half of the adolescent girls (51-65%) were aware about consequences of not taking proper diet during pregnancy and lactation i.e. weakness, anaemia, weak foetus, inadequate milk production, weak infant and decrease in immunity.

Table 5: Distribution of adolescent girls by their knowledge about consequences of not taking proper diet during pregnancy and lactation. N=100

S. No.	Consequences	Pre test f / (%)	Post test f / (%)
1.	During pregnancy		
	a. Weakness	57	98
	b. Anaemia	65	98
	c. Abortion	34	79
	d. Weak foetus	54	94
2.	During lactation		
	a. Inadequate milk production	65	94
	b. Weight loss in lactating woman	52	82
	c. Problems in future conception	38	80
	d. Weak infant	59	93

e. Reduction in work capacity of lactating woman	60	86
f. Reduction in immunity	51	92

At the same time about 62-66 percent respondents had poor knowledge about the two consequences i.e. abortion and problem in future conception. Probably the girls might not have come across to these complicated and technical terms.

The post phase assessment reflected qualitative improvement in the knowledge of adolescent girls as maximum number of adolescent girls (92-98%) could report about all the consequences occurred due to improper diet during pregnancy and lactation. This might be due to the reason that the girls took interest in new learning. Besides, the technical terms were repeated and emphasized during training, hence girls could tell about them easily.

The findings of the present study are in conformity with the study conducted by Sodhi et al. (2002) reported that a girl who attended intervention programme was 1.8 times more likely to be reporting high level of perceived knowledge contrast to those who had not attended this programme.

Table 6: Distribution of adolescent girls by their knowledge about type of food stuffs to be given to lactating woman soon after delivery. N = 100

Foods Stuffs	Pre test	Post test	Reasons	Pre test	Post test
	f / (%)	f / (%)		f / (%)	f / (%)
Liquid diet up to 2 days	31	86	Mother is weak and not able to eat properly	39	83
Semi solid diet from third day	38	83	Easily digestible	35	89
Nutritious diet after a week	40	94	To meet mother's daily requirement	43	91

Prior to training, 31-43 percent respondents had knowledge about type food stuffs to be given to lactating mother soon after delivery with reasons that mother is weak and not able to digest heavy food stuffs. But after training 83-94 percent respondents had correct knowledge.



### Knowledge regarding Breast feeding

Prior to training nearly half of the respondents (53%) were in favour of feeding colostrum to the baby while rest was against it. But after the training, majority of the respondents (91%) were convinced that the first breast milk should be given to the child for good health.

Table 7: Distribution of adolescent girls by their knowledge about importance of colostrum feeding for infants. N=100

S. No.	Items	Pre test	Post test
		f / (%)	f / (%)
1.	Knew about feeding of colostrum	53	91
2.	Importance of feeding colostrum		
	a. For proper growth and development of the child	39	88
	b. Prevention from diseases	43	90
	c. To increase milk secretion	28	82

Regarding reasons of feeding colostrum, 39-43 percent adolescent girls knew about two reasons i.e. helpful in growth and development of the child and prevents the child from disease prior to training. After the training a good number of respondents (81-90%) could tell about all the reasons of colostrum feeding.

The results are in line with the study conducted by Aneja et al. (2001) concluded that 47 percent of mothers lacked knowledge about colostrum feeding and were continuing the traditional practices of discarding it colostrums and not feeding to the child.

Sethi et al. (2003) also reported that breast feeding was initiated after three days of child birth (54%), colostrum was discarded by majority of mothers (77%) considering it 'dirty' and unfit for the body. Pre lacteals like honey, unboiled water, sugar syrup and ghutti were given by 80 percent of mothers considering them as cleaning agents. No mother exclusively breast feed her infant for the first six months.

Table 8: Distribution of adolescent girls by their knowledge about the conditions when breastfeeding should be avoided. N=100

S. No.	Conditions	Pre test	Post test
		f / (%)	f / (%)
1.	When mother is ill	59	83
2.	Diseased breast/ infection in breast	63	89

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3.	Mother is pregnant	50	91
4.	Mother is anaemic	43	83

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Initially more than half of the adolescent girls (50-63%) were aware about the conditions when breast feeding should be avoided. But after exposure to training 83-91 percent respondents mentioned about all the conditions in which breast feeding should be avoided. During informal discussion with the respondents it was found that they concentrated more on those messages which were new to them, important to remember during later stages and significant in improving the health of children.

### CONCLUSIONS

Empowering is the most recent approach towards adolescent girl's development which implies empowerment at grassroots with emphasis on self-reliance, build up potential for improving one's own welfare and bringing out constructive changes in the lives of family members. The findings of the study led to conclude that, even after the efforts of the government, the knowledge about nutrition has not been reached to rural adolescents up to desired extent as was indicated in the present research. Prior to exposure to training, less than 50 percent of girls had poor knowledge in almost all aspects of nutrition during pregnancy and lactation. But after the training programme, remarkable improvement was observed in the knowledge of adolescent girls as they gained knowledge in all the aspects of nutrition during pregnancy and lactation. This indicates that the positive impact of training programme leading to gain in knowledge. Thus considering the future role of adolescent girls in maintaining the health and nutrition of their family, all the developmental should focus on this age group.

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