

A study on assessment of nutritional knowledge and impact of nutrition education on knowledge level of adolescents

PRATIBHA SINGH¹, SHIVANI BHARDWAJ¹, CHETNA JANTWAL¹, SUMAN VERMA¹ and RITA SINGH RAGHUVANSHI²

Department of Home Science Extension, College of Home Science, G. B. Pant University of Agriculture and Technology, Pantnagar 263145 (U. S. Nagar, Uttarakhand)

ABSTRACT : The present study was designed to assess the nutritional knowledge among the adolescents and impact of nutrition education on their knowledge level. A sample size of 1101 adolescents in the age group of 12-18 years of class 7th to 12th were selected from two schools of district Udham Singh Nagar, Uttarakhand. A nutrition and health awareness program was conducted for a period of six months. The nutritional knowledge of adolescents was assessed with the help of a developed questionnaire. A pre test was conducted for adjudging the existing level of nutrition knowledge about health, nutrition, healthy cooking methods and personal hygiene. After imparting nutrition education post test questionnaire were distributed to adjudge the gain in nutrition knowledge of adolescents. The data collected was statistically analyzed by analysis of variance (one way ANOVA). The results revealed that the per cent increment in knowledge level of adolescents was 41.57 per cent. Thus nutrition education is an effective measure to bring about the favorable and significant change in knowledge level.

Key words: Adolescents, nutrition education, nutrition knowledge

Adolescence is the only time following infancy when the rate of physical growth actually increases. This sudden growth spurt is associated with hormonal, cognitive and emotional changes that make adolescence an especially vulnerable period of life. There is a greater demand for nutrients due to the dramatic increase in physical growth and development over a relatively short period of time. Adolescence is a time of changing lifestyles and food habits that affect both nutrient needs and intake and adolescence drive for individuation means more opportunity to assert food choice and expand or narrow healthy options. This age group is highly susceptible to nutritional deficiencies and poor eating habits which may lead to problems later on in life so there is a need of special attention Nutritional needs during this period are increased because of the increased growth rate and changes in body composition associated with puberty. A majority of school going children and adolescents consume inadequate diets and are malnourished (Sharma *et al.*, 2009). The dramatic increase in energy and nutrient requirements coincides with other factors that may affect adolescent's food choices and nutrient intake and thus nutrition status. There are many body changes which results due to the influence of hormones. With profound growth of adolescence there is increased demands for energy, protein, mineral and vitamins. However, eating patterns

are frequently erratic in adolescents, and this may be a common factor of nutritional risk. Nutrition education as one of the important practical aspects of nutrition knowledge, it plays an important role in raising public awareness and ultimately health of society (Berino *et al.*, 1997). Adolescent brings forth the capacity to think logically and abstractly. So the Nutrition education imparted during this period has lifelong impact in their life as adolescent is a learning stage and it is easier to learn and understand the things in a faster way. With the above background, the present study was formulated to assess the knowledge increment of adolescents after imparting nutrition education.

MATERIALS AND METHODS

In the present study 1101 adolescents were selected from two schools of district Udham Singh Nagar of the age group 12 to 18 years. Their nutritional knowledge was assessed with the help of questionnaire. Before imparting nutrition education to the students a pre-test was conducted containing 15 questions related to nutrition, health along with the healthy cooking practices. The paper was distributed to each student for adjudging the existing level of nutritional knowledge. For right answer of each question one score was awarded to the students. After that nutrition education was

imparted using booklets and flip charts through lecture cum discussion method in class rooms. Topics covered in booklets for imparting nutrition education were food – their function , nutrients- their function, balance diet , different cooking practices to improve nutritive value of food and food hygiene and sanitation. After imparting nutrition education in 5 days sessions in each class again a post test containing the same questions as pre-test was conducted. The questionnaire were distributed and given to each student in each class to adjudge the gain in nutrition knowledge. The data collected was analysed and knowledge increment percent was calculated to see the overall effect of programme on the knowledge level of students. Analysis of variance (one way ANOVA) was used for the statistical analysis of the data. Statistical significance was set at $p < 0.05$. Gain in nutrition knowledge or knowledge increment was calculated by using the following formula:

$$KI\% = \frac{\text{Post test score} - \text{pre test score}}{\text{Post test score}} \times 100$$

RESULTS AND DISCUSSION

Table 1 shows that in the pre test 60.58 per cent of the students obtained marks in range 5-10, 36.42 per cent students scored marks between 0-5 whereas only 3.00 per cent students scored marks between 10-15. A positive change has been found in the scores of the adolescents after imparting nutrition education. Study done by Singh *et al.* (2013) and Singh *et al.* (2015) also found positive impact of nutrition education on adolescent girls. Similarly results of a study conducted by Shariff *et al.* (2008) revealed that nutrition education intervention has a positive impact on nutrition knowledge, attitude and

practices of participants. In post test it was found that majority of the students i.e. 55.95 per cent scored marks between 10-15 followed by 42.42 per cent students who scored marks in the range 5-10 and only 1.63 per cent adolescents scored in the range 0-5 (Table2). A significant ($P < 0.05$) increase in nutrition knowledge scores was observed in adolescents. Similar study done by kaur *et al.* (2007) in Himanchal Pradesh found that the nutrition education improved the mean nutrition knowledge scores of the adolescents significantly. Lua and Elena (2012) also concluded that nutrition education appeared to be the best method for enhancing student's eating habits and promoting healthier diets and lifestyles. Also, study conducted by Fallah *et al.* (2013) revealed that nutritional education have a positive effect on nutritional awareness.

The statistical analysis of the data revealed the effectiveness of the nutrition education among the adolescents which was measured in terms of gaining scores. Table.3 shows that the average pre test score was 6.19 ± 2.04 which significantly increased to 10.74 ± 2.33 in post test score. The average knowledge gain was 30.33 per cent and quantum of improvement was 1.74 times.

The average knowledge increment percent was calculated to see the overall effect of programme on the knowledge level of students. The average knowledge increment across the schools was 41.57 per cent. For 7th, 8th, 9th, 10th, 11th and 12th the knowledge increment was 47.35, 45.95, 40.23, 38.77, 40.69 and 37.55 per cent respectively (Table.4). The findings of the study are in line with the study done by Singh *et al.* (2014) who found significant improvement in nutrition knowledge scores

Table 1: Distribution of students based on pre test scores out of 15

Sl. No.	Name of the school	Total no. of students	Pre test scores		
			Low (0-5)	Medium (5-10)	High (10-15)
1.	Saraswati Shishu Mandir Inter College, Rudrapur	473	150 (31.71%)	298 (63.00%)	25 (5.28%)
2.	Government Girls Inter College, Fazalpur	628	251 (39.97%)	369 (58.76%)	8 (1.27%)
	Total	1101	401 (36.42%)	667 (60.58%)	33 (3.00%)

Table 2: Distribution of students based on post test scores out of 15

Sl. No.	Name of the school	Total no. of students	Pre test scores		
			Low (0-5)	Medium (5-10)	High (10-15)
1.	Saraswati Shishu Mandir Inter College, Rudrapur	473	8 (1.69%)	139 (29.38%)	326 (68.92%)
2.	Government Girls Inter College, Fazalpur	628	10 (1.59%)	328 (52.23%)	290 (46.18%)
	Total	1101	18 (1.63%)	467 (42.42%)	616 (55.95%)

Table 3: Average knowledge gain by the students

Test	Knowledge
Average pre test score	6.19±2.04
Average post test score	10.74±2.33
Average knowledge gain	4.55 (30.33%)
Quantum of improvement	1.74 times

Table 4: Knowledge increment across schools

Schools	Class						Average
	7 th	8 th	9 th	10 th	11 th	12 th	
Saraswati Shishu Mandir Inter College, Rudrapur	45.87	46.35	40.46	40.19	42.55	40.50	42.65
Government Girls Inter College, Fazalpur	48.84	45.56	40.00	37.36	38.83	34.61	40.49
Average knowledge increment across class (%)	47.35	45.95	40.23	38.77	40.69	37.55	41.57

from 5.5±1.91 to 9.5±2.24 in 1668 adolescent girls in Udham Singh Nagar district of Uttarakhand.

CONCLUSION

Adolescence is an important stage of growth and development in the lifespan in which development of brain takes place. The knowledge imparted during this period has lifelong impact in their lives and the ability to understand is highest. The results of the present investigation also revealed that average knowledge increment is 41.57 percent and quantum of improvement in knowledge gain is 1.74 times. So it can be concluded that nutrition education plays a vital role in improving the nutritional knowledge, which in turn will improve the nutritional status of the adolescents and their family members.

ACKNOWLEDGEMENTS

The authors thank Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, Uttarakhand and Nestle India Pvt. Ltd. For providing the financial help and other support required during the research period.

REFERENCES

- Berino, H. J., Hood, V., Rourke, J., Terrance, T. and Dowaldt, A. (1997). Food preferences predict eating behavior of very young Mohawk children. *Journal of American Dietetic Association*, 97: 750-753.
- Fallah, F., Pourabbas, A., Delpisheh, A., Veisani, Y. and Shadnough, M. (2013). Effects of Nutrition Education on Levels of Nutritional Awareness of Pregnant Women in Western Iran. *International Journal of Endocrinology/Metabolism*, 11(3): 175-178.
- Kaur, T. J., Kochar, G. K. and Agarwal, T. (2007). Impact of Nutrition Education on Nutrient Adequacy of

Adolescent Girls. *Studies on Home and Community Science*, 1 (1): 51-55.

- Lua, P. L. and Elena, W. (2012). The Impact of Nutrition Education Interventions on the Dietary Habits of College Students in Developed Nations: A Brief Review. *The Malaysian Journal of Medical Sciences*, 19(1): 4-14.
- Sharma, S., Nagar, S. and Chopra, G. (2009). Health Awareness of Rural Adolescent Girls: An Intervention Study. *Journal of Social Science*, 21 (2): 99-104.
- Singh, P., Joshi, P., Binwal, D., Phartyal, M., Sharma, S. and Raghuvanshi, R. S. (2014). Assessment of knowledge increment on nutrition and health among adolescent girls of Uttarakhand state. *International Journal of Basic and Applied Agricultural Research*, 12(1): 140-143.
- Singh, P., Singh, R., Joshi, P., Pant, S. and Raghuvanshi, R. S. (2013). Creating awareness on nutrition and health among rural adolescent girls of district Udham Singh Nagar, Uttarakhand. *Pantnagar Journal of Research*, 11(3):457-460.
- Singh, P., Verma, S., Jantwal, C., and Raghuvanshi, R. S. (2015). Impact of nutrition education on knowledge levels of adolescent girls in District Udham Singh Nagar, Uttarakhand. *International Journal of Basic and Applied Agricultural Research*, 13(1):124-126.
- Shariff, Z. M., Bukhari, S. S., Othman, N., Hashim, N., Ismail, M., Jamil, Z., Kasim, S. M., Paim, L., Samah, B. A., Hussein, A.M. (2008). Nutrition Education Intervention Improves Nutrition Knowledge, Attitude and Practices of Primary School Children: A Pilot Study. *International Electronic Journal of Health Education*, 11:119-132.

Received: March 11, 2016

Accepted: April 3, 2017