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# Impact of Nutritional Awareness Package on Secondary School Students for the Improvement of Knowledge, Attitudes and Practices

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**Abstract:** ***Nutrition plays an important role in the overall development of an individual. The span of school going age is the best age for gaining and giving nutrition education which has lifelong effect on the individual health. In the present study an attempt was made to observe the impact of imparting nutrition related knowledge to school going male and female children. Nutrition education was provided to school going children to improve their nutritional status and well being. A questionnaire was prepared covering different questions pertaining to various topics viz., nutrients and their functions, sources of various nutrients in the diet, balanced diet, importance of green leafy vegetables and other vegetables and fruits in diet, iron deficiency disorder and other deficiency disorders and their prevention. The questionnaire was pre-tested so that the appropriate data can be obtained. Nutrition education was imparted to 2038 selected school children for six weeks. Lectures were delivered with the help of visual aids, i. e., charts and posters; play activities, quizes etc. After six weeks, the same questionnaire was used for post testing so as to see the gain in nutritional knowledge. Aggregated scores were computed to find out the pre and post knowledge and increment in knowledge was determined. It was found that nutrition education had a positive effect on increasing the knowledge scores of school children and was very beneficial for improving the status of school children. Maximum knowledge gain was 33.95% and minimum was 25.85 % and which was reported in the age group of 16-17 years in case of boys and 10-12 years in case of girls. Girls of age group 16-17 years showed the highest attitude gain i. e.30.04% whereas the lowest score was 25.68% among girls of age group of 10-12 years. Girls of age group 16-17 years showed the highest attitude gain i. e.30.04% whereas the lowest score was 25.68% for girls of age group of 10-12 years. Nutrition education can be used for imparting good eating habits and improving nutritional status of children.***

**Keywords:** Nutrition education, pre testing, post testing, knowledge, attitude, practice

## 1. Introduction

Nutrition plays a very important role in the health, physical growth and mental status of an individual. Poor nutritional status is one of the major causes of Protein Energy Malnutrition. In India, 189.2 million people are undernourished and 34.7 per cent of the children aged under five are stunted and 20 per cent of India's children under the age of 5 suffer from wasting, meaning their weight is too low for their height. (Anonymous 2020).

In India, 30 per cent of the school age children suffer from moderate to severe malnutrition. Major nutrition problems reported are anaemia, scurvy, rickets and PEM (Chandna and Sehgal, 1994). Nutritional problems not only affect growth and development but also affect future adversely. School children form an important vulnerable segment of population and constitute about 20 per cent of total population of India. School age is a dynamic period of growth and development as children undergo physical, mental, emotional and social changes during this stage. During school age promoting good health and nutrition are essential for effective growth and development (Chandna and Sehgal, 1994). Nutrition education can be an important tool for improving dietary habits and food choices. School age is the best age for sharing nutrition education and can be helpful in improving the nutritional status, children's health, self-esteem, life skills and behavior. Schools offer a readily available venue for reaching most of school age children. In addition to provide a site where interventions can be provided the programmes can be implemented that promote health and prevent many of the specific diseases. Adequate nutritional knowledge and healthy eating habit and physical exercise at this age would be a foundation for good health in adulthood. School-based nutrition education has shown some success in promoting appropriate dietary behaviors in children (Ruzita et. al., 2007). According to Gupta and Kochar (2008), nutrition educations were 1.67 times more effectual for improving the nutritional knowledge of adolescent girls. Nutrition education is a process by which knowledge, attitudes and practices about food and health are channelized into actual practices which are sound and consistent with the individual needs, purchasing power, food availability, health and socio-cultural background In the present study an attempt has been made to see the impact of imparting nutrition knowledge to school going children of government schools located in district Una of Himachal Pradesh India.

## 2. Material and Methods

1. Sampling and Design of study: This study was conducted on a representative group of 1040 school children between age group of 10-17 years of Una district of Himachal Pradesh. The group comprised of 499 girls and 541 boys from six different Senior Secondary Schools. The study was conducted from the month of April 2019 to March 2020. The school children were divided into three different age groups i. e.10-12 years, 13-15 years and 16-17 years. The age of

the school children were ascertained from the school records. All the children registered and attending school at the time of the survey were included. Efforts were made to examine the students who were absent on a particular day at the next visit.

After explaining the purpose of visit, a verbal consent was obtained from the Principal of the schools. The Nutrition education was imparted to both girls and boys; the purpose and importance of nutritional awareness programme were explained to them.

2. Tool for the study:-A KAP (knowledge, attitude and practices) questionnaire was developed considering the important aspects of nutrition. The questionnaire was developed on the topics related to food and its importance; nutrients like carbohydrates, proteins, fats, vitamins and minerals about their functions in the body, their sources and deficiency disorders; eating habits, cooking practices; health and hygiene; balanced diet; methods of conservation of nutrients; faulty dietary habits and their improvement; digestion and absorption of food, etc. The children were pre tested on the basis of the questionnaire prepared and the scoring was done. Nutrition education was imparted to the students for the six weeks with the help of a module, which consisted of various KAP questions like importance of food, nutrition and nutrients and general discussion on nutrients in foods, knowledge related to human body, digestive system and concept of balanced diet, food groups and their importance and food pyramids, cooking methods and their effect on nutrients, relationship between good food and health, hygiene, safety and physical activity. Importance of food and its nutrients, vitamins and minerals, anemia, its causes, prevention and treatment, various lectures, discussions, games and quiz. The visual aid like posters and charts were provided to the school which was displayed in the corridor of the schools so that students can revise the module easily. After sixth session the students were evaluated on the same questionnaire for post evaluation. The questionnaire had a total of 55 questions 23 questions from knowledge test, 16 from attitude and 16 from practice of cooking and consumption. To assess the primary knowledge level, the students were directed to fill in the questionnaire independently. For this purpose, they were given 45 minutes and the filled forms were collected for evaluation.

Under the attitude test different questions were asked which included whether food should be covered while cooking; whether fruits and vegetables should be washed before cutting; is mustard oil is best for frying; is balanced diet good for health; should we drink tea with food; should we sieve the flour; is calcium good for teeth and bones; does deficiency of vitamin D lead to rickets in children; is calcium important for formation of bones and teeth; is vitamin C required for iron absorption; is iodine essential for physical and mental development, does eating of sufficient food can protect from anemia; should not we use soaked water of pulses; does nutrients remain in food if we cook in pressure cooker.
Under the practice test the different questions were viz; whether vegetables are cut in large size, whether vegetables are washed before cutting, whether whey removed after curdling in *paneer* preparation is used, does flour of cereals and pulses are used to make *parathas*, water used for soaking of rice to make rice, use of fruit juice and lassi in summer, use of lemon juice on salad, sowing of vegetables in kitchen garden, check the manufacture and expiry date of the product during purchase of processed food products., after frying use of left over oil after frying for making vegetables and dal, drinking of water immediately after eating food, use of fruits and vegetables without washing, eating of green leafy vegetables.
Statistical analysis of data

The collected and quantified data was coded and statistically analyzed using standard methods. (Sendecor and Cochran, 1967). The data was statistically analyzed using 't' test.

## 3. Results and Discussion

**Table 1:** Age wise distribution of students in Schools

| S. No. | Age Group | Boys | Girls |
|---|---|---|---|
| 1. | 10-12 years | 88 | 111 |
| 2. | 13-15 years | 383 | 356 |
| 3. | 16-17 years | 601 | 499 |

As shown in the Table 1 the total numbers of students were 2038 covered in three different Government Senior Secondary schools of District Una. There were 88 boys and 111 girls in the age group of 10-12 years, 383 boys and 356 girls in the age group of 13-15 years and 601 boys and 499 girls in the age group of 16-17 years. The total numbers of male were 1072 as compared to 966 female.

**Table 2:** Gain in Knowledge mean (±SD) of boys and girls of different age group

| | Age Group10-12 | | Age Group13-15 | | Age Group16-17 | |
|---|---|---|---|---|---|---|
| | Boys (n=88) | Girls (n=111) | Boys (n=383) | Girls (n=356) | Boys (n=601) | Girls (n=499) |
| Pre testing | 5.68±2.81 | 6.73±2.59 | 6.41±2.84 | 6.79±2.73 | 6.17±2.93 | 7.85±3.13 |
| Post testing | 11.91±3.94 | 12.63±4.06 | 13.39±3.96 | 13.76±3.75 | 13.98±3.73 | 14.33±3.60 |
| T test | 12.076** | 12.908** | 28.032** | 28.352** | 40.366** | 30.344** |
| % Gain | 27.08±19.23 | 25.85±18.37 | 30.33±17.74 | 30.29±17.68 | 33.95±19.79 | 28.15±17.89 |

Imparting nutrition education through six lectures and interactions with school going children helped in improving nutrition related knowledge of these students. The knowledge gain of boys and girls ranged between 27.08 to 33.95% and 25.85 to 30.33% across the different age groups. Maximum knowledge gain was 33.95% and minimum was 25.85 % and which was reported in the age group of 16-17 years in case of boys and 10-12 years in case of girls. The maximum knowledge gain was 30.29% and minimum 25.85% knowledge gain in case of girls of age group of 16-17 years and 10-12 years. In case of boys the maximum knowledge gain was 38.30% and minimum 34.51% knowledge gain in age group of 13-15 years and 10-12 years. The percent knowledge gain was 25.85% and 38.64% in case of girls and boys in the age group of 10-12 years. The percent knowledge gain was same in case of girls (30.29%) and boys (30.33%) in the age group of 13-15 years. The percent gain was more in case of boys as compared to girls. On an average there were 27.08, 30.33, 33.95 and 25.85, 30.29, 28.15 percent increase in knowledge of boys and girls. Maximum knowledge gain was more in boys as compared to girls. The t test for all the age groups was extremely significant.

**Table 3:** Gain in Attitude mean (±SD) of boys and girls of different age group

| | Age Group10-12 | | Age Group13-15 | | Age Group16-17 | |
|---|---|---|---|---|---|---|
| | Boys (n=88) | Girls (n=111) | Boys (n=383) | Girls (n=356) | Boys (n=601) | Girls (n=499) |
| Pre testing | 6.80±2.54 | 7.24±2.41 | 6.42±2.32 | 6.94±2.25 | 6.47±2.28 | 6.86±2.34 |
| Post testing | 11.24±1.81 | 11.35±1.98 | 11.13±1.70 | 11.43±1.72 | 11.23±1.71 | 11.66±1.55 |
| T test | 13.354** | 13.883** | 32.048** | 29.913** | 40.945** | 38.202** |
| % Gain | 27.77±15.62 | 25.68±17.34 | 29.47±16.26 | 28.11±16.19 | 29.76±16.44 | 30.04±17.33 |

The nutrition education helped in improving attitude of the students towards nutrition. The gain in attitude change ranged between 25.68 to 30.04% across the different age groups of boys and girls. Girls of age group 16-17 years showed the highest attitude gain i.e. 30.04% whereas the lowest score was 25.68% for girls of age group of 10-12 years. The attitude gain percent of boys and girls ranged between 27.77 to 29.76% and 25.68 to 30.04%. Attitude gain was more in girls as compared to boys. The girls were work in the kitchen and helping their mothers.

**Table 4:** Gain in Practice mean (±SD) of boys and girls of different age group

| | Age Group10-12 | | Age Group13-15 | | Age Group16-17 | |
|---|---|---|---|---|---|---|
| | Boys (n=88) | Girls (n=111) | Boys (n=383) | Girls (n=356) | Boys (n=601) | Girls (n=499) |
| Pre testing | 6.67±2.68 | 7.47±2.42 | 6.67±2.17 | 7.37±2.29 | 6.97±2.37 | 7.71±2.75 |
| Post testing | 11.59±1.77 | 11.99±1.58 | 11.67±1.50 | 12.14±1.45 | 11.99±1.41 | 12.46±1.35 |
| T test | 14.370** | 16.477** | 37.094** | 33.205** | 44.626** | 34.636** |
| % Gain | 30.75±19.66 | 28.27±15.88 | 31.32±15.96 | 29.86±15.99 | 31.41±16.10 | 29.70±18.15 |

The nutrition education helped in improving nutrition related practice gain of the boys and girls. The practice change gain ranged between 28.27 to 31.41% across the different age groups of boys and girls. Girls of 13-15 years showed the highest practice gain i. e.29.86% whereas the lowest score was for girls of 10-12 years (28.27%). The practice change gain of boys and girls ranged between 30.75 to 31.41% and 28.27 to 29.86% in different age groups. Boys and girls of age group 16-17 years showed the highest practice gain i. e.31.41 and 29.86%. The nutritional related practices are also affected by the knowledge, attitude and practice of cooking by the mothers/ ladies at home of the students. Other factors like knowledge, attitude and nutritional practices adopted by the family and economic status of the family also affected the attitude and practices of the student/ child. Practice gain was more in boys than girls.

The results of the present study are in concurrence with the study of Chawla (1992) who reported significant improvement in knowledge and attitude of the females of Ludhiana towards good nutrition. After imparting nutrition education, these females tried to practice the same knowledge in their day-to-day life. The study of Jain and Chawla (1999) also found positive impact of nutrition education on school going adolescent girls of Kanpur.

## 4. Conclusion

Adequate nutritious and balanced diets along with maintenance of health are the chief requirements in a society. There was significant improvement in the nutritional knowledge of the subjects after nutrition education. Hence, we can conclude from the present investigation that nutrition education is an important measure to improve dietary habits and food choices of the adolescent school children, as poor dietary habits and ignorance are the main reason for poor nutritional status of the school children. It was concluded that boys have more knowledge and practice gain percent as compared with girls. The attitude gain percent was more in girls as compared with boys. The knowledge gain percent was 27.08, 30.33 and 33.95 in case of boys in the age group of 10-12, 13-15 and 16-17 years. The practice gain percent was 30.75, 31.32 and 31.41 in case of boys in the age group of 10-12, 13-15 and 16-17 years. The attitude gain percent was 30.04 in case of girls in the age group of 16-17 years.

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