

Using Winter Camp Days of National Service Scheme (NSS) Volunteers to Impart Nutrition and Health Education – Experience from Hyderabad

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Abstract:

The National Service Scheme (NSS) is functioning under ministry of youth Affairs and sports. The main objectives of NSS are personality and self development through experiential learning by serving the community with the motto - "Not for me but for you". NSS volunteers take part in the special camps, which are usually conducted in the adopted villages for over 10 days and engage themselves in community service and awareness creation activities. During such special winter camps in 2014 & 2015, two different sets of NSS volunteers (N-140) were recruited for this study. Informed consent was obtained from the participants and the NSS project officers of the college. For the 2014 batch, the post-intervention data were collected after a gap of two weeks, whereas for the 2015 batch endline data was conducted immediately after the educational intervention in exit interview mode. **Objectives:** To measure the nutritional status of the degree level college students of the Hyderabad city. **Methodology:** To measure the height of the students a standard height rod was used and to measure the weight of the student electronic weigh machine was used. **Results:** As per WHO classification, 19.3% were underweight (with BMI <18.5), 60.7% were normal weight and about 20% were overweight/obese. When the knowledge levels were measured, the knowledge scores for 2014 improved from 32.8 to 39.82, and for 2015 they improved from 36 to 47.8 respectively. **Conclusion:** The current study shows the nutrition awareness camps can be an effective means to improve nutrition knowledge of the student volunteers. Further studies may be required to assess how much of this is percolating to the community. **Key words:** 1. NSS volunteers 2. Nutrition 3. BMI (Body Mass Index) 4. Knowledge

Introduction

Health of a community in any nation depends on mental and physical health of individual and also nutritional status of the community. The health of the community depends on various aspects such as literacy rate, health infrastructure, social condition, and economic status, cultural and political factors of the country. Among all economic status and healthy food practices and knowledge are important to apply in to practice. Culturally we are socialized with different pattern of food intake habits, practice and preferences. Though the community is practicing general dietary pattern, it was found with many

deficiency disorders which end up in public health problems such as energy deficiency, stunted growth, iron deficiency anemia, vitamin-A deficiency, iodine deficiency disorders etc. A cohort study of healthy eating index identified that in women, cancer mortality was associated with 18-26% lower risk of all cause mortality, a 19-28% lower risk of CVD mortality and 11-23% lower risk of cancer mortality⁽¹⁾. On each five year plan government has been increasing the budgetary allocation to improve the nutritional status of the population through various programmes. However the problems are not yet solved.

Nutrition education is essential to bring out awareness among the youth to manage healthy nutritional status. Nutrition education is the key element in promoting sustainable healthy eating behavior, and should start from early ages of life. The importance of early learning of nutrition related knowledge, attitude and behaviors for future health is widely recognized. According to our system students are exposed to nutrition related information as a part of their curriculum mostly up to the high school level. Apart from the curriculum, mass media and in the interpersonal communication are the other sources available for the students to obtain information about health and nutrition. Other than Food and Nutrition subject students, the other subject students get less chance to acquire more knowledge about nutrition and it is important to impart nutrition education among college going students to enrich their knowledge and this could be useful to educate the community. Since the NSS volunteers are doing more service to the community as part their programme, importing knowledge to NSS volunteers will serve multipurpose of the national need. Because their service is voluntary, cost effective and community participation is also high. We have selected them to our research during winter camp days with the following objectives

- ✓ To measure the nutritional status of the degree level college students of the Hyderabad city.

- ✓ To measure the nutrition knowledge levels before and after educational intervention.

Research methodology

Socioeconomic details of the NSS volunteers were collected, to measure the height of the students a standard height rod was used and to measure the weight of the student electronic weigh machine was used and to estimate the knowledge a pre tested knowledge assessment questionnaire was used which has consist of health and nutrition related question in multiple choice, true or falls and filling the blanks methods. Two different batches of NSS volunteers were included in the study, only the camp day when they were at their adopted village were used for data collection and spent time up to their community education programme. 2014 (N=92) and 2015 (N=48) SPSS-20 version was used to analyse the data. Chi-square and 't' test were calculated to find the difference between the group and pre and post intervention knowledge improvement.

About NSS

The national service scheme was evolved by the education commission constituted in the year 1964-1966, under the chairmanship of Dr. Kothari. Based on his recommendation, this programme was introduced in 37 universities of our country with 40000 volunteers had increased to 3.2 million volunteers and the program has extended 298 Indian universities. The different hierarchical position like Project co-coordinators, projects officers and the volunteers has been working under the Ministry of Youth Affairs. They are working for various programme, mainly creating awareness to selected areas about health, child care, environment management, water harvesting, organizing health camps and blood donations camp not only these, but they are also motivated towards individual personality development. The NSS volunteers are devoted 80 hours at the adopted villages to understand the problem, Health, family welfare and nutrition are important thirst areas.

Nutritional Status of our country

Nutritional Status is one of the main indicators of good health. There are many social factors involved in determining the nutritional status. Some important factors are per capita income, food purchasing capacity, food

availability, cultural practices, taste preference and hygiene. The 2006 NNMB⁽²⁾ report gives an overall picture about the population status of our country. According to the report 36% of the women and 33.2% of the men are having chronic energy deficiency. 51% of the men and 53% of women are normal in nutritional status. 7% and 9 % of men and women respectively are overweight. 0.7% and 1.5% of men and women respectively are obese. Under-weight, stunting and wasting was significantly prevalent among school children. In addition to the above information micro-nutrient deficiency like iron deficiency anemia, Vitamin 'A' deficiency and Iodine deficiency is also prevalent. The risk factors like the macro and micro nutrient deficiencies in our population have become a major burden to our country. Several studies reported a close association between malnutrition and impaired wound healing, increased post operative complication, and mortality⁽³⁾. A profile of youth in India report describe that the population between the age 15-24 accounts for 195 million, their health status is very important for future of the nation. Whereas if we observe the situation under nutrition is very common 44% of women and 47% men are abnormally thin, and more than 55% of the women are anemic which has adverse health effect⁽⁴⁾.

Education Material used as a source material

Folders: A set of colour folders on different nutrition theme such as function of food, nutritional requirement during adolescent age, nutrition during pregnancy, Infant and Young Child Feeding practices, importance of micronutrient in health management, iron and folate. All the important points were covered and the related photographs were also included in the folders.

Flex charts: A set of ten flex charts on different themes of nutrition were developed with title such as energy rich foods, protein rich foods (plant and animal), iron rich foods, fats and oil, calcium rich food, balanced diet, nuts and oil seeds, which is right (consuming natural food or Intake of medicine) which consist of title and colourful picture no textual information was given, while delivering the lecture the detailed information was explained to them.

Results

Table - 1: Socio-economic details of the NSS Volunteers

| Variable | Females (N = 140) | |
|----------------------------|-------------------|------|
| | N | % |
| Gender | | |
| Female | 140 | 100 |
| Religion | | |
| Hindu | 97 | 69.3 |
| Christian | 29 | 20.7 |
| Muslim | 10 | 7.1 |
| Others | 4 | 2.9 |
| Caste | | |
| Forward Caste | 98 | 70.6 |
| Backward Caste | 33 | 23.6 |
| Scheduled Caste | 6 | 4.3 |
| Scheduled Tribes | 3 | 2.1 |
| Father's Education | | |
| Up-to Primary | 10 | 7.1 |
| SSC | 22 | 15.7 |
| Intermediate | 20 | 14.3 |
| U.G | 37 | 26.4 |
| P.G and above | 51 | 36.4 |
| Mother's Education | | |
| Up-to Primary | 8 | 5.8 |
| SSC | 32 | 22.8 |
| Intermediate | 25 | 17.8 |
| U.G | 33 | 23.6 |
| P.G and above | 42 | 30.0 |
| Father's Occupation | | |
| Govt. service | 33 | 23.6 |
| Pvt. Service | 39 | 27.9 |
| Business | 51 | 36.4 |
| Professionals | 9 | 6.4 |
| Others | 8 | 5.7 |
| Mother's Occupation | | |
| Govt. service | 12 | 8.6 |
| Pvt. Service | 24 | 17.1 |
| Business | 9 | 6.4 |
| Professionals | 14 | 10.0 |
| Housewife | 81 | 57.9 |

BMI (Body Mass Index)

currently food habits among the teen are observed to be irregular and excessive snacking, eating away from home, unhealthy food availability to their social environment and peer group pressure are some of the major reason which are influencing their food consumption pattern mainly opting processed food intake leads to obesity short and long time adverse health complication, who are overweight⁽⁵⁾ are higher risk for hyperlipidemia, hypertension, insulin resistance and type two

diabetes compared with normal weight individuals. The normal weight range in Indian women is 18.5 - 24.9 BMI. Of the 140 NSS Volunteers, 60.7 % were in this normal range. 19.3% of the girls were in the underweight category and 10.7 % were overweight. 9.3 % of them were obese with BMI greater than 30. Many studies proves that the reason for obesity⁽⁶⁾ and overweight are many hormonal and neural factors involved in weight regulation are determined genetically, 50-70% of them are predisposition of genes, lack of exercise and sedentary lifestyle are also reasons for obesity.

Table - 2: BMI (Body Mass Index) classification (WHO)

| Variable | Females (N = 140) | |
|-------------|-------------------|------|
| | N | % |
| < 18.5 | 27 | 19.3 |
| 18.5 – 25.0 | 85 | 60.7 |
| 25.0 – 30.0 | 15 | 10.7 |
| > 30.0 | 13 | 9.3 |

Energy

To meet the energy need mainly we are depend on cereals and millets and the per capita availability of cereals is 412.1 gram per day (2006-2007). It is well established that consumption of varieties of cereal and millets are provide additional nutrient and fibre to the health ⁽⁷⁾. Knowledge about energy yielding food has help us to include the food item in to the diet, Now in the present days instead getting the energy from the home based meals has decreased by almost 20% among the young adult they are opting easily accessible convenience item such as fast food, sugary drinks and also food choices were highly influenced by taste preference ⁽⁸⁾. In the first intervention study, the girls were given a baseline

questionnaire to fill. An intervention was given after 15 days. On average, 66.6 % of them answered wrong in the baseline which decreased to 53.4 % after intervention. Of the six questions on energy, there was one question for which only 19.6 % answered correctly which significantly increased to 40.7 % after intervention. After one year the study was repeated with the same questionnaire for different set of students (2015). In this batch, the sample size was 48. The students were assessed with a baseline questionnaire which was subsequently followed by the intervention of an hour lecture (PPT, charts and visuals). 37.15 % had addressed the question correctly in the baseline. The intervention had made an impact on the students by increasing the percentage by 17 %.

Table - 3: The Knowledge of NSS volunteers on Energy

| SI. No | I st batch | | | | II nd Batch | | | |
|--------|-----------------------|--------------|-----------------------------|---------------|------------------------|--------------|-----------------------------|---------------|
| | Baseline (N = 92) | | After Intervention (N = 59) | | Baseline (N = 48) | | After Intervention (N = 48) | |
| | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % |
| 1 | 98.9 | 1.1 | 94.9 | 5.1 | 93.7 | 6.3 | 45.8 | 54.2 |
| 2 | 31.5 | 68.5 | 35.6 | 64.4 | 41.7 | 58.3 | 89.6 | 10.4 |
| 3 | 23.9 | 76.1 | 20.3 | 79.7 | 22.9 | 77.1 | 2.1 | 97.9 |
| 4 | 98.9 | 1.1 | 42.4 | 57.6 | 97.9 | 2.1 | 81.2 | 18.8 |
| 5 | 80.4 | 19.6 | 59.3 | 40.7 | 54.2 | 45.8 | 8.3 | 91.7 |
| 6 | 66.3 | 33.7 | 67.8 | 32.2 | 66.7 | 33.3 | 43.7 | 56.3 |
| | 66.65 | 33.35 | 53.383 | 46.616 | 62.85 | 37.15 | 45.116 | 54.883 |

Protein

Proteins based foods are also known as Body Building food. Egg, milk, meat, pulses and legumes are the main sources of Protein. Protein requirement vary with age and physiological condition during adolescent age they need more protein for the growth and development. As per the report of the analysis of changing food consumption pattern in India the pulses consumption level has come down from 12 kilogram per year during 1999-2000 decreased in to 9.6.kilogram in urban house hold ⁽⁹⁾. Indian population are not consuming recommended level

of protein which is very much essential to improve the growth and development of children and adolescent age group. There were four questions based on protein rich foods. Of these questions, 70 % of them answered correctly which increased to 73.3% after intervention. Baseline study followed by immediate intervention has a better impact on the student's nutrition knowledge. Thus, in the second batch the immediate intervention gives better impact with questions related to Proteins. The percentage of correct answers went up from 70 % to 81 %.

Table - 4: The Knowledge of NSS volunteers on Protein

| SI. No | I st batch | | | | II nd Batch | | | |
|--------|-----------------------|---------------|-----------------------------|--------------|------------------------|--------------|-----------------------------|---------------|
| | Baseline (N = 92) | | After Intervention (N = 59) | | Baseline (N = 48) | | After Intervention (N = 48) | |
| | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % |
| 1 | 58.7 | 41.3 | 45.8 | 54.2 | 56.3 | 43.7 | 58.3 | 41.7 |
| 2 | 29.3 | 70.7 | 32.2 | 67.8 | 33.3 | 66.7 | 8.3 | 91.7 |
| 3 | 15.2 | 84.8 | 8.5 | 91.5 | 6.3 | 93.7 | 4.2 | 95.8 |
| 4 | 14.1 | 85.9 | 20.3 | 79.7 | 22.9 | 77.1 | 2.1 | 97.9 |
| | 29.325 | 70.675 | 26.7 | 73.3 | 29.7 | 70.3 | 18.225 | 81.775 |

Vitamins and Minerals

Vitamins and Minerals are essential nutrients for the body to maintain a healthy life, which are available in fruits, vegetables and green leafy vegetable, The recent NNMB ⁽¹⁰⁾ report gives the picture that no states had met the recommended level of micronutrient such as vitamin A, Vitamin C, Folate and iron to the adolescent age girls aged between 16-17 years. A study results indicates that dietary intake of fruits and vegetables is directly ⁽¹¹⁾ related to income. There were nine questions on

Vitamins and minerals. On an average the girls answered 56.6 % of the questions correctly which improved to 74.4 % which is statistically significant. In the second batch where the students were given a detailed lecture on Health and Food & Diseases, there is a strong evidence that the intervention improved the knowledge of the students (p<0.05). There was significant improvement in the percentage of correct answers from 66% to 85 % from baseline to after educational intervention.

Table - 5: The Knowledge of NSS volunteers on Vitamins and Minerals

| Sl. No | I st batch | | | | II nd Batch | | | |
|--------|-----------------------|---------------|-----------------------------|--------------|------------------------|--------------|-----------------------------|---------------|
| | Baseline (N = 92) | | After Intervention (N = 59) | | Baseline (N = 48) | | After Intervention (N = 48) | |
| | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % |
| 1 | 72.8 | 27.2 | 40.7 | 59.3 | 47.9 | 52.1 | 47.9 | 52.1 |
| 2 | 41.3 | 58.7 | 33.9 | 66.1 | 47.9 | 52.1 | 12.5 | 87.5 |
| 3 | 48.9 | 51.1 | 20.3 | 79.7 | 41.7 | 58.3 | 31.3 | 68.7 |
| 4 | 45.7 | 54.3 | 18.6 | 81.4 | 39.6 | 60.4 | 10.4 | 89.6 |
| 5 | 55.4 | 44.6 | 23.7 | 76.3 | 35.4 | 64.6 | 20.8 | 79.2 |
| 6 | 30.4 | 69.6 | 16.9 | 83.1 | 14.6 | 85.4 | 4.2 | 95.8 |
| 7 | 4.3 | 95.7 | 3.4 | 96.6 | 10.4 | 89.6 | 0 | 100 |
| 8 | 73.9 | 26.1 | 67.8 | 32.2 | 54.2 | 45.8 | 6.3 | 93.7 |
| 9 | 18.5 | 81.5 | 5.1 | 94.9 | 12.5 | 87.5 | 4.2 | 95.8 |
| | 43.466 | 56.533 | 25.6 | 74.4 | 33.8 | 66.2 | 15.288 | 84.711 |

Health

Education about diseases, health and hygiene are being a part and parcel of school education in the biological science books. In the college curriculum science students has been exposure to some extent. Whereas during college days the college authorities were conducting health camps and blood donation camps provide an exposure to them about health and diseases that

could be a reason that during baseline survey itself they have better knowledge on health and diseases Based on the questions about health, 36 % answered it incorrectly which significantly reduced to 24 % after the intervention. In the second batch, there was significant difference in the knowledge levels before and after intervention. In the baseline study only 67 % had answered the questions correctly which significantly increased to 95 % after intervention.

Table - 6: The Knowledge of NSS volunteers on Health

| Sl. No | I st batch | | | | II nd Batch | | | |
|--------|-----------------------|---------------|-----------------------------|---------------|------------------------|---------------|-----------------------------|---------------|
| | Baseline (N = 92) | | After Intervention (N = 59) | | Baseline (N = 48) | | After Intervention (N = 48) | |
| | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % | Wrong in % | Correct in % |
| 1 | 46.7 | 53.3 | 23.7 | 76.3 | 41.7 | 58.3 | 18.8 | 81.2 |
| 2 | 21.7 | 78.3 | 18.6 | 81.4 | 29.2 | 70.8 | 0 | 100 |
| 3 | 6.5 | 93.5 | 8.5 | 91.5 | 6.3 | 93.7 | 0 | 100 |
| 4 | 94.6 | 5.4 | 64.4 | 35.6 | 85.4 | 14.6 | 10.4 | 89.6 |
| 5 | 34.8 | 65.2 | 23.7 | 76.3 | 29.2 | 70.8 | 2.1 | 97.9 |
| 6 | 6.5 | 93.5 | 1.7 | 98.3 | 4.2 | 95.8 | 0 | 100 |
| 7 | 45.7 | 54.3 | 33.9 | 66.1 | 60.4 | 39.6 | 0 | 100 |
| 8 | 26.1 | 73.9 | 13.6 | 86.4 | 18.8 | 81.2 | 4.2 | 95.8 |
| 9 | 41.3 | 58.7 | 32.2 | 67.8 | 22.9 | 77.1 | 8.3 | 91.7 |
| | 35.988 | 64.011 | 24.477 | 75.522 | 33.122 | 66.877 | 4.866 | 95.133 |

Discussion

Despite we adopted two different educational method to assess impact of nutrition education to the NSS volunteers to improve their knowledge in the respective topics, in the first method which was carried in the year 2014, A Pretested questionnaire consist of thirty questions was administered among the volunteers during their winter camp day at the village, after the baseline two weeks time gap was given to them later, a nutrition education intervention was carried out at their college conference hall, initially a set of colour folders on various nutrition themes such as energy, protein, micronutrient, iron and folate, nutrition during adolescent, nutrition during pregnancy and young child feeding practice were distributed among them, 15 minutes time was given to read the material, and it was followed with power point presentation slide and elaborate lecture was delivered and a video film was also screened to them, after a week the same knowledge assessment questionnaire was administered to found the knowledge improvement. Significant knowledge improvement was observed $P < 0.005$. Whereas in the second batch (2015) a nutrition information lecture was given with the support of flex chart explaining more of visual than text, ten important topic were discussed adequate time was given to read the folders and also for discussion, then the volunteers were went around the village to conduct their own program on village development, on the same day evening the impact assessment survey was carried out in their camp venue, the paired 't' test result indicates that highly significant results in knowledge improvement ($P < 0.0001$.) the same day assessment shows better result than the previous one, and at the same time the second batch we received equal sample size because it was camp site, in the first batch in college atmosphere organizing the same set of students in the hall felt to be a challenge to the NSS program officer due to peer group influence as well other activities of the colleges. The silent camp situation allowed more attention to the lecture, the immediate post assessment survey helped them to gain knowledge as well, this method perhaps will be suitable for winter and mega camp days training program of NSS volunteers.

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